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Use of Policy and Regulation in ICT for Poverty Reduction, Job Creation and Income Generation

استخدام السياسات والتنظيم في الاتصالات وتقنية المعلومات لتقليل حدة الفقر وخلق الوظائف وزيادة الدخل

The Thesis is in Partial Fulfillment for Master Degree in ICT Policies and Regulation

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Dedication

Thanks to the Living Almighty God for keeping me through to this time and finish this piece of research which first dedicated to God of Chosen and my family, secondly to all colleagues of the first batch of the Master program in ICT Policies and Regulation organized by Sudan University of Science and Technology, College of Computer Science and Information Technology, indeed a wonderful working team, I don't forget the Specialized crew of Lecturers by exerting efforts and rendered high quality teaching methodology to the students.

Acknowledgement

Abstract:

Governments are guided by different socio-political and economic objectives, the ICT Policies and regulations are done to fit and address specific goals, it is thus not surprising that the detail of this Policies and regulations varies across different countries. What is constant across is the acceptance that ICT is a basic right and is regarded as instrumental to economic growth, an enabler for Poverty Reduction, Job creation and Wealth Generation. Having in mind that roadmap paved in order to strife and leapfrog from status where poverty, high rate of unemployment, illiteracy still challenging to governments of the developing world, as such Techno-Oriented -leadership in a country is a major determinant for success by championing the inclusion of ICTs to accomplish the required concepts and goals at the National and Regional Level. The study attempted to tackle and reflect on the ICT within Policy and Regulation previously applicable in the Country. the incumbent Sudan Telecommunication Public Corporation (STPC) was rendering Monopoly service, after the implementation of privatization and liberalization of Telecommunication market, new era started in harmony with the modern trend in the Industry, as such monopoly was abandoned and replaced by competitive market, With optimism, the country needed to construct a high way for Broadband like fiber backbone, that has helped the national policy supportive to what the study is leading to. implementation of the National plans to improve the ICT network as well has improved the livelihood of people, new graduates and skilled Youths are able to create jobs for themselves and be self-employed ,the emerging and engagement of SMEs into such related business is remarkable, so far answered the question, that ICT can create jobs ,the reasonable number of ICT shops and kiosks that are scattered in the towns and Cities are signs of humble contribution of the ICT industry, an indication of breakthrough, instrumental to economic growth and sustainable development within the context of the Millennium Development Goals.

Translation of Abstract in Arabic Language

نبذة مختصرة:

وتسترشد الحكومات بأهداف اجتماعية، سياسية واقتصادية مختلفة، تنفذ سياسات ولوائح تكنولوجيا المعلومات والاتصالات لتلائم ومعالجة أهداف محددة، وبالتالي فإنه ليس من المستغرب أن تختلف تفاصيل هذه السياسات واللوائح عبر بلدان مختلفة. وما هو ثابت هو القبول بأن تكنولوجيا المعلومات والاتصالات حق أساسي، و هي أداة أساسية للنمو الاقتصادي، تمكين الحد من الفقر، خلق فرص العمل وتوليد الثروة. وإذ تضع في اعتبارها أن خارطة الطريق مهدت من أجل الصراع والقفز من الوضع الذي لا يزال فيه الفقر، ارتفاع معدل البطالة والأمية يشكلان تحديا لحكومات العالم النامي لأن هذه القيادة الموجهة نحو التكنولوجيا في بلد ما هي عامل رئيسي للنجاح من خلال إدراج تكنولوجيا المعلومات والاتصالات لتحقيق المفاهيم والأهداف المطلوبة على المستويين الوطني والإقليمي حاولت الدراسة معالجة تكنولوجيا المعلومات والاتصالات والتفكير فيها في إطار السياسة العامة والتنظيم المطبق في البلد. كانت شركة الاتصالات العامة السودانية الحالية تقدم خدمة الاحتكار، بعد تنفيذ الخصخصة وتحرير سوق الاتصالات، بدأت حقبة جديدة في انسجام مع الاتجاه الحديث في الصناعة، حيث تم التخلي عن هذا الاحتكار واستبداله بسوق تنافسية، مع التفاؤل، كانت البلاد بحاجة إلى بناء النطاق العريض مثل الألياف ، مما ساعد السياسة الوطنية الداعمة لما تؤدي إليه الدراسة. وتنفيذ الخطط الوطنية لتحسين شبكة تكنولوجيا المعلومات والاتصالات وكذلك تحسين معيشة الناس والخريجين الجدد والشباب المهرة قادرون على خلق فرص العمل لأنفسهم وتكون لحسابهم الخاص، ظهور ومشاركة الشركات الصغيرة والمتوسطة في مثل هذه الأعمال ذات الصلة لافت للنظر ، أجاب حتى الآن على السؤال الذي مفاده أن تكنولوجيا المعلومات والاتصالات يمكن أن تخلق فرص عمل وأن العدد المعقول من متاجر تكنولوجيا المعلومات والاتصالات والأكشاك المنتشرة في المدن هي علامات على مساهمة متواضعة في صناعة تكنولوجيا المعلومات والاتصالات، مما يدل على انفراجة، وهي أداة مفيدة للنمو الاقتصادي والتنمية المستدامة في سياق الأهداف الإنمائية للألفية

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ACRONYMS

AISI:	African Information Society Initiative
AR:	Asymmetrical Regulation
AT&T:	Multinational Telecommunications Corporation
BoS:	Bank of Sudan
CDMA:	Code Division Multiple Access
COMESA:	The Common Market for Eastern and Southern Africa
CPA:	Comprehensive Peace Agreement
ECOWAS:	Economic Community of West African States
FCC:	Federal Communication Commission
GOSS:	Government of Southern Sudan
GoM:	Government of Mozambique
GSM:	Global Mobile System
HIV/AIDS:	Acquired Immune Deficiency Syndrome
IDEP:	International Day for the Eradication of Poverty
ICT:	Information Communication Technology
ICT4D:	Information Communication Technology for Development
ICT4PVR:	Information Communication Technology for Poverty Reduction
Intelsat:	International Satellite
Inmarsat:	International Satellite Service
ILO:	International Labor Organization
IT:	Information Technology
ITU:	International Telecommunications Union
ITSO:	International Telecommunication Satellite Organization
ISDN:	Integrated Services Digital Networks

ISPs: Internet Service Providers

ISOs: International Satellite Organizations

MBT: Master of Business Telecommunication

MDGs: Millennium Development Goals

MSMEs: Micro- and Small to Medium Enterprises

NICI: National Information and Communications Infrastructures

NTC: National Telecommunication Corporation

PABX: Private Automatic Switch

PBR: Performance-Based Regulation

PC: Personal Computer

PPPs: Potential for Public-Private Partnerships

PRSPs: Poverty Reduction Strategic Plans

PSTN: Public Telecommunications Network

RECs: Regional Economic Communities

SADC: Southern Africa Development Community

SMS: Short Message Service

SME: Small and Medium Entrepreneurs

SS7:   Signaling System number seven

SUDATEL: Sudan Telecommunication

TMN: Mobile Telecom Management Network

UK: United Kingdom

UNECA: United Nations Economic Commission for Africa

UNCSTD: The United Nations Commission for Science and Technology Development

USA: United State of America

USF: Universal Service Facility

VOIP: Voice over Internet Protocol

VSAT: Very Small Apparatus

WIPO: World Intellectual Property Office

WTO: World Trade Organization

WiFi: Wireless Fidelity

WiMax: Worldwide Interoperability for Microwave Access

YEN: Youth Employment Network

Chapter I

Introduction

1.1 Introduction

Telecommunications and Information Communication Technology (ICT) are pillars for development, connected and tied together to the extent of a convergence, an illustration for innovation and creativity, hope and change of lifestyle, a dilemma and a mystery of how ICT entered into a daily performance and program of institutions, individuals. Without ICT life becomes difficult, it is a real fact, a catalyst, enabler a tool for change and reform. Addressing the millennium development goals, sustainable development and the digital divide ICT is key therein to mention, a phenomenon, a cross-cutting component to development. Countries promulgate laws, policies to regulate and cartel the citizens' concerns, solving problems be its poverty reduction, Job creation and even wealth generation. Having in mind the importance of ICT, the research is reflecting on what the policy is, the Regulation and its types and styles also a highlight on poverty, its dimensions and what are the triggers for poverty further the expanded literature work on the Policy and Regulation followed by detailed literature on Unemployment and Poverty.

1.2 Specific Introductory on Policy

The policy is the basis of regulation, in democratic countries policy is formulated by the executive arm of the government, and regulators are delegated to implement its contents. The policy assumes different forms. The Oxford dictionary similarly links policy to government action and makes references to the policy as a course or principle of action adopted or proposed by the government, party, business; prudent conduct. Policy can also be understood as an attempt to define and structure a rational basis for action and inaction. The policy has also been associated with the administration; the two are however very different as indicated by Parsons that a set of political actions constitutes a policy [1].

ICT policy is trans-boundary function government have to consider in promoting and developing the sector equally within the regional context. Otherwise, that country will lag behind. Polices that show the use of ICT applications as enabler for Poverty reduction, Job creation and wealth generation, will be materialized by addressing infrastructure development, create enabling environment. Constructing a broadband, Liberalization of the ICT Sector are indicators on the

roadmap gearing towards the use of ICT as enabler, Promoting Infrastructure sharing and Universal service and access.

1.2.1 Policy-making processes

Who formulates policy in the ICT domain? Governments determine how ICT should evolve through the formulation of policies. However, they differ in the extent to which they involve non-government participants or stakeholders, such as, civic societies, consumer representatives, academia, trade unions, private companies, foreign companies and other political parties in the process of formulating policies.

Who is included or excluded in the process is based on the political and legal system in place and the prerogatives of government therein?

Democratic societies generally attempt to include all stakeholders in the policy formulation process for a variety of reasons. In some cases, they do so in order to ensure that diverse interests are embraced and where possible harmonized that through green and white paper discussions. In other cases, they attempt to achieve maximum consensus and buy-in, so that implementation processes receive maximum cooperation from affected stakeholders and secure the support of the legislature.

This mode of policy formulation does not evolve without some costs, wider and consultative policy formulation consumes resources, such as, the time required to negotiate comprises between diverse stakeholder views, funds to support venue costs to accommodate participants and transport costs to ensure key participants resident outside the metropolis are present. However, wide consultation allows diverse inputs, facilitates innovative solutions to complex issues and adds legitimacy to policy.

Some countries implement democracy more selectively. In some cases, they may limit the number of participants and involve foreign or private companies. Although this form of top-down policy formulation does not consume time and financial resources, it makes government beholden to the temperaments of private businesses rather than their fellow citizens. In other cases, the state may invite private companies as well as unions into policy formulation processes, and thus limit possibilities of resistance to change.

However, the government may be locked into a position of negotiating between two opposing stakeholders (Big business and unions) rather than addressing the concerns of civil society or governance.

1.2.2 Translating the Policy into Law

How legislation is promulgated, in other words, the process through which government policy is transformed into a binding piece of legislation is done through either of the systems of governance, the presidential or parliamentary system.

The system In Sudan is the Presidential type of governance, referring to the current Telecommunication Act 2001 which now under process to be amended, new Bill is produced tabled to the Council of Ministers and will be also tabled before the Legislative Assembly for deliberation then final approval. It becomes a law upon the signature of the President. In South Africa they will include the national assembly, national council of provinces, In Botswana and Lesotho they will include the national assembly and the House of Chiefs, In Tanzania they will include the National Assembly, In Namibia the legislative power is vested in the National Assembly, subject to the power and functions of the National Council as set out in the Constitution of the Republic of Namibia.

Once differences have been eliminated or consensus reached through voting, the policy is ratified by the Head of the executive arm of government, the president.

1.3 Specific Introductory on Regulation

Regulation is a phenomenon to delegate an independent authority with confidence and skills to regulate the specific or multi-sector industry, an ideal regulation ratifies monopoly necessary for the public interest, prevent exploitation and ensure economy of scale.In Sudan before privatization Policies the Public operators did provide services as well as regulate the sector in most of the countries, few isolated cases like in the USA exists where regulatory activity was always separated from service provision. However, the wide scale introduction of liberalization of telecommunications markets provoked by the growth of new technologies such as mobile

communications and Internet, increased the availability of capital to expand telecommunications services and networks, the inability of public operators to meet demand efficiently, compelled governments to establish regulators to manage the market along national policy objectives. The objectives inevitably varied from country to country, as governments were guided by different socio-political and economic challenges of their countries as they shaped telecommunications regulations. It is thus not surprising that the detail of telecommunications regulation varies across different countries. What is constant across these different countries is the acceptance that telecommunications is a basic right and is regarded as an instrumental enabler to economic growth. Governments of most countries today view telecommunications provision as an essential public service and have accordingly sought to ensure that telecommunications accords with public interest ethos of national policies.

Why do we regulate? There are several reasons for the establishment of regulators in the ICT sector. The obvious answer is that policies established by governments cannot on their own regulate the sector; an institutional vehicle is required to translate policy to rules and regulations. However, there is general consensus that the regulator's intervention is required to ensure that fair play prevails in the market and that consumers are protected and catered for.

1.4 Specific Introductory on Poverty and Unemployment

Poverty Causes can be understood as comprising of two elements: the social Characteristics or personal resources of an individual or household which mediate how resistant or vulnerable they are to poverty, and the event which actually triggers entry into poverty. What triggers poverty for some will not trigger it for others A unique advantage of poverty dynamics is that, by tracking individuals or households over time, it can identify the events associated with entry into poverty. The economic stability of a household depends on the balance between the household's needs and the income required to meet those needs. An overarching observation on poverty is more commonly triggered by changes in income than by household change. In turn, household change is more important for poverty entry than exit, the increased household need is more likely to trigger entry into poverty than decreased household need is to trigger exit from poverty.

Information and Communication Technology (ICT) should be linked to consolidate current knowledge between employment, poverty alleviation and role of governments, private sector

their strategies in developing and implementing actions to address Job creation and poverty concerns.

Governments at the moment have unique opportunity to catch up with the rest of the world and be part of the modern economy by leapfrogging through the diverse group to bridge the digital divide. Prioritize ICT and mainstreaming them into national development agenda and evolve comprehensive policies for adoption. After this introduction highlighting on the Topic of this study Policy and Regulation as enablers for use of ICT in Poverty Reduction, Job Creation and Wealth Generation can now be understood as the study has ascertained the connection through the interviews conducted which from the answers probed to the facts stated

1.5 The Research Organization

The organization of the Research is done to highlight the detail literature work on the ICT Policy with subsection addressing the genesis and historical background in Sudan, its evolution towards competition while focusing on the national human resource and further capture the ICT sector Policy in Southern Sudan Post CPA, chapter one concluded by the regulation broadly classified functions like social, economic and technical regulation and enforcement mechanism.

meanwhile chapter two focuses on the effect of ICT on unemployment and poverty, the role of government and private sector to lead and champion the walk to realize the policy objectives gearing to promote infrastructure that facilitate the use of ICT as enabler, considering the economic and Political capabilities further reflecting on the dynamics of poverty and how to escape the poverty.

Chapters four briefly explains the research methodology and the approach selected which is qualitative as primary and quantitative as secondary approach and chapter five reflected the interviews conducted, the findings and results, chapter six concluded the research work and closed by the recommendation as chapter seven.

Chapter II

ICT Policy and Regulation

2.0 ICT Policy and Regulation

2.1 Reflection on Genesis of ICT Policy in Sudan

The historical background in the last Century on the Telecommunication policy is gearing and targeting service delivery and connection of important government and other institutions, indeed internet network was not in the minds, only Fax mail, Telegraphs messages and the analogue communication telephone system which was considered the state of the art, a modest ICT phenomenon instrumental to economic growth but not to satisfaction.

2.2. The evolution towards ICT Sector competition

The telecommunication market and its Policy before the National salvation revolution and few years after were being managed by a government public corporation, [2] [3] Not the entire network in the country was to the satisfaction of the customer .Even though the network was covering most of the big towns no proper transmission backbone existed ,the available analog Transmission system was using microwave links and an earth satellite stations constructed by an American Company (Harris), besides these there were trunk copper cables for connecting switches across three cities of Khartoum, Omdurman and Khartoum North with limited capacity and efficiency .The challenges which had faced the previous management to improve the entire network was aggravated by the scarcity of hard currency from Bank of Sudan (BoS) to buy spare parts for analogue systems available by then. It was tedious and challenging to those handling and managing the entire network, there were also a huge number of redundant employees without work, and cost wise was a burden to the limited resources, the economic situation and the policy implied therein was convincing to the new regime that a new economic policy is needed. That situation forced them to come out with a new economic policy where the privatization was introduced [4].

The Incumbent (STPC) the then monopolistic Sudan Telecommunication Public Corporation got privatized and a new market actor emerged where Sudan Telecommunication company (SUDATEL) was born to replace Sudan Telecommunication Public Corporation, opportunity for Licensing more Companies in Telecommunications sector and Internet services become a reality and a new Mobile company (Mobitel) being worked on inside Sudatel Company.

2.3 The market after introducing Privatization policy.

The privatization policy was a turning point for Sudan economy in general and the market for telecommunication industry in particular, even though there were some critics to this policy, it could be considered as a political rivalry, the policy was a sound exercise to economic correction and reform.

2.4. National Human resource

SUDATEL entered the Telecommunication market by identifying Sudanese experts in the telecommunication sector in addition to international experts where a good foundation and plans were laid preparing the ground for future competition. That preparation for competition came true after the elapse of the exclusive period granted to the newly born company who managed to use its talents and muscles in the field to change all the analog systems to digital environment all over the country, by doing that SUDATEL has prepared herself to the competitive market, a breakthrough conforming the success of the privatization policy.

2.5 The New Players in the ICT Competitive Market

New players in telecommunications market entered the industry, GSM license introduced for mobile network later followed by fixed wireless networks; this expansion in the telecommunications licensing addressed the policy for employment and Job creation in the country as well as improving the livelihood of the staff, improved pay and reasonable social security.

The transition period for SUDATEL to enter the competition arena cause its management to introduce CDMA networks, their argument was that the new carriers are GSM OPERATOR flying over waves, meanwhile SUDATEL, was driving through conduits and cabling network, they decide to fly together over waves (to minimize maintenances costs of cables and building new conduits system with higher operation cost) that was really a crucial argument and logical, according to the policy and license type. This implementation process for the economic policy of the regime, (Sudan Policy for Economic Reform) heralded regulatory entity the National Telecommunication Council which later renamed National Telecommunication Corporation (NTC).

The plain policy scenery characterizing telecommunication market in Sudan during the last years shows the trend for full competition, the licensed companies for both fixed line fixed wireless or GSM are focusing and targeting to maximize the numbers of their customers by promotion support in the services rendered. Meanwhile building human resource capacities happened by sending staff for specialized training. Since customers are the focal point in the competitive telecommunication business the customer care unit is one of the functional departments to be taken care of for the welfare of this targeted group. So that the telecommunication commodity being sold to them is according to their expectation and aspiration and can answer questions about Quality of service, connectivity or reach out to rural areas, introducing broadband as such jobs creation is addressed micro businesses are created which generate income to these families. The present companies are rolling out even to the remotest areas targeting the potential market available, Sudan is a vast country and still needs to be explored in some of its parts, concentration in the capital of the country is profitable but the rural areas have the profit margin which cannot be ignored by the competing stakeholders.

The extreme form of market power or dominance power in Sudan is not there but the essential facility is available where the commodity or service is being supplied on monopoly bases or degree of monopoly, such service is required by competitors. They are supposed to compete and create their own but practically this service duplication by competitors themselves technically or economic wise is not viable, so the concept of essential facilities is important to the application of competition law to regulate telecommunication sector. Further clarification on defining the essential facilities by the World Trade Organization (WTO) that a public telecommunications transport network or service that is exclusively or predominantly provided by a single or limited number of suppliers and cannot feasibly be economically or technically substituted in order to provide a service, this can be illustrated in our case in Sudan like the fiber optic backbone which is shared as one of the essential facilities for transmission(Economic Reform Policy in Sudan post 1989) moreover, the endeavor by the authorities in the Government of Southern Sudan after the signing of the Comprehensive Peace Agreement (CPA) is an attempt to catch up with the advanced stage where Sudan has reached, the South was lagging behind due to the long devastating Conflict that claimed many lives, and development activities came to a halt.

2.6 The government of Southern Sudan ICT Sector Policy Post -CPA.

The Government recognizes the crucial role of telecommunication in supporting social and economic development. It is, therefore, the Government's policy to ensure equitable and easy access to telecommunication services by the citizens of Southern Sudan in order to realize this goal.

The Government also recognizes that a purely commercial approach in the provision of telecommunication services could marginalize the majority of the citizens, especially those living in rural and remote areas; and has therefore made universal access, supported by appropriate interventions, a key objective.

The Government recognizes the convergence of Information and Communication Technologies (ICT) and it will put in place appropriate mechanisms to ensure maximum synergy and harmonized policies, laws, and regulations within the ICT sector.

The overall access to the basic telecommunication services by the majority of the Southern Sudanese as well as modern and state-of-the-art services by the commercial enterprises and international organizations are key strategic priorities that the Government shall aim to achieve as illustrated in Figure 2.1 below the graph Telecommunication Revenues are shooting up in the African Countries an indication of healthy progress.
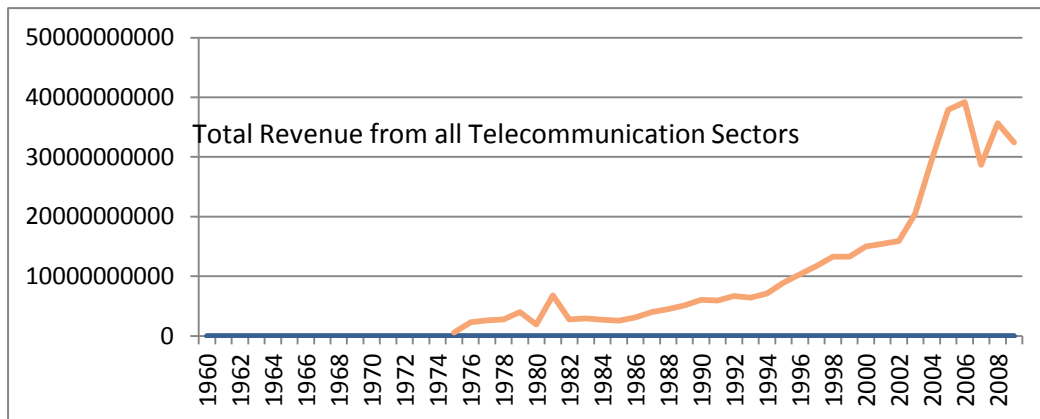
Figure 2.1 Revenue evolution US$ of African nations of the telecom sector.

Source ITU 2010 statistic report

2.6.1 Policy Objectives

As the concern to mitigate the disparity in the southern part of the country, the Government policy aims to maximize the utilization of telecommunications for the promotion of economic and social activities by availing affordable, efficient and reliable telecommunication services. In particular, the Government in its policy aims to:

a) Promote the use of telecommunications in all sectors of the economy, especially the utilization of ICT in both public and private sectors.
b) Promote technologically neutral approaches in the delivery of services e.g. through the use of Voice over Internet Protocols (VOIP), VSAT among others.

2.6.2 Policy Targets

The Policy targets are defined within the context of providing an infrastructure, to ensure that the availability of voice and data networks is provided as detailed below.

2.6.3 Government trend for the sector service delivery

a) Establishment of Data Access Points of high speeds for educational and health institutions, Call centers, Government. Administrative centers and other public institutions as may be determined by the Ministry in consultation with the States.
b) Establishment of Access Points within Government. Ministries and other public centers like market centers, hospitals and schools.
c) Interconnection of all State capitals and GOSS capital, Juba, as part of the Southern Sudan Data Backbone.

2.7. Development of access to basic telecommunication services

a) Establishment of Universal Service Fund with support from the Private sector. This shall be used to subsidize for the provision of basic services in areas which licensed operators consider commercially unprofitable.

b) A universal service access target of 25% of the population, up from the current level of below 6% of the Southern Sudanese.

c) Encourage the promotion of Computer Literacy in all education institutions and other training centers

d) Internet connection target to at least 25% of commercial enterprises and households in Southern Sudan.

It is noted that the achievement of the various targets, especially within the universal access definition, will depend heavily on the speed of rural electrification. Strong coordination will be required with the Rural Electrification or alternative energy initiatives to ensure that the power needs of the units targeted under universal access have got access either to mains power or to alternative sources of energy.

2.8   Policy Strategies

The overall strategy is to create an environment conducive for the establishment of a technology neutral regulatory framework. This will be achieved through:

a) Issuance of licenses that ensure optimum use of available resources and shared infrastructure with other public utility sectors like energy and water.

b) Promotion and encouragement of licensing of regional and international links

c) Through the harmonization and cooperation in respect of regulatory policies.

d) Evolution of a legal framework with provisions to address the rapid evolution of technologies within the sector.

e) Continuous policy review to ensure that all the telecommunications equipment meet international standards for compatibility and service quality.

f) Continuous Policy review to ensure efficient use of scarce resources like Numbering, Orbital slots, Frequency Spectrum.

2.9   Infrastructure Development

The Policy implementers shall undertake the following in order to realise accelerated telecommunications infrastructure development in case of South Sudan which is lagging behind:

a) Encourage through regulatory incentives the setting up of telecommunications backbone   infrastructure throughout Southern Sudan.

b) Promote public and private sector participation in the provision of such backbone systems.

c) Encourage cost effective techniques by cooperating with other utility providers like the Railways and Power Supply companies through integrated planning and implementation of   the relevant Government infrastructure projects.

d) Support and actively participate in regional infrastructure development initiatives in order to ensure timely implementation.

e) Establish an integrated Government telecommunications infrastructure to serve GOSS Ministries, and Departments in Juba and the ten States.

f) Develop a pricing and tariff regime that will facilitate the achievement of affordable basic telecommunication services as well as catering for special pricing models for education and health.

g) Provide incentives such as tax relief for network infrastructure development and other ICT products in order to improve on affordability.

2.10   The Market Structure

The Government believes a new market structure is necessary for the telecommunications sector, one which orientates the sector toward accelerated development, Micro business that shall pave way for Job Creation and wealth generation which in turn shall accelerate attainment of the Millennium Development Goals (MDGs) and which also takes into account technological and international trends. In general, such policies that address the new market entails the formulation of structure segments through which telecommunications licensees shall be competing for the benefit of the customer The market structure as stipulated in the policy which addresses Job creation shall be targeting general Sale of Telecommunications Equipment and services.

2.11 Principle of ICT Regulation

The Regulators fulfill the below main functions which can also be broadly classified as

Meeting social and political objectives, (Social regulation), Meeting economic goals, (Economic regulation), Meeting technical requirements (technical regulation) and lastly Enforcement and implementation of regulations [5].

2.12 Social and Political Objectives.

Regulatory activity is often associated with economic regulation, yet one of the prime motivations for establishing regulators is premised on the need for social regulation, more particularly in the era of competition where operators tend to address profit margins and reduce social obligations to burdensome and costly obligations. Social regulatory issues emerge in a variety forms, namely:

- Consumer concerns: residential as well as business users, need to know that they are amongst others, receiving accurate bills, that they are able to make emergency calls when necessary, that they are entitled to private conversations, that they are able to access telephones from any geographic location and that they are able to exercise choice of operator and services.
- Quality of service: Users need to know that the network and services are reliable, that the network is maintained and upgraded to support new services that call between parties are continuous.
- Diffusion of network and services: Users need to know that telecommunications networks and services are geographically wide-spread and accessible to all, including those who are physically challenged.
- Service types: Users need to know that they can access and use different services, and be informed of the cost and types of services.
- Repairs: Users need to know that damaged networks, faulty services and faulty disconnections will be repaired within reasonable time.
- Cost of services: Users need to be informed of the change in prices of existing and new services. Users need to be informed also of the costs of international, national and local services. Users need to know what they are paying for.
- User sensitivity: Equitable treatment, e.g. Disabled people should be enabled to access services of their choice.

Consumers do not often have the information, or resources to challenge the service providers. Regulators of markets, who are more likely to have the resources (enforcement powers, lawsuit funds, access to decision-makers) are expected to ensure that consumers are protected and that their concerns are timely addressed. Regulators can protect consumer interests by prescribing social obligations, by imposing price caps to control prices, establishing consumer complaint commissions, developing incentives to ensure cooperation and compliance with regulations, setting quality of service indicators and universal service targets and time frames. In the process of ensuring that operators meet social obligations, regulators also fulfill distributive functions, such as, sharing of scarce resources and public goods [6].

More often, all stand to benefit from adherence to social objectives. Although they are often viewed as burdensome by operators, social obligations enhance the public image of operators and improve network externalities in the process. They enhance the image of the ministries for whom infrastructure development is high on the agenda, and they enhance the image of the regulator who is then viewed as effective and necessary.

In view of the public nature of telecommunications, regulation thereof is invariably imbued with political interests. However, different debates have emerged on the value of politics in regulation. For instance, formalists have argued that through separation of powers it is possible that the legislature, the Executive branch and the Judiciary have clear distinct functions, and go as far as suggesting that the legislature makes the laws, the executive branch executes them and the courts interpret them. The reality of regulation illuminates a different picture. In political choice in regulatory administration, Hays asserts that:

The legislature, the executive agency, and the Judiciary are merely different settings in which political controversy and choice are ordered. Much of the drama of our political system arises from the way in which each of these institutions remains open to making its own distinctive contribution to resolving political controversy

Political institutions constitute the context within which regulation unfolds; the ideological and related symbolic realms define thoughts and assumptions. Policies which guide the telecommunications sector are often formulated in a political context, in the presence of multiple interest groups. Although some practitioners had attempted to promote the idea that policy-

making is the exclusive function of the ministry or government, it has become evident that regulators took shape policy and the telecommunications sector in the manner in which they implement policies. By ensuring that operators meet national objectives aligned with the policies set out by governments, regulators fulfill a political function.

Politics will persist in the realm of regulatory activity because although regulation constitutes distribution by "experts" as opposed to political parties, it allows for the representation of a narrow range of interests, whilst distribution through political parties allows for representation of a wider group of interests - including social groups. The problem for promoters of social obligations arises when the narrow interests are limited to economic groups, at the expense of social groups and related issues. It is in the regulators interest to widen participation to allow multiple players or interests to enhance political credibility of decisions.

A further area with economic but also social slant is for the regulator to ensure practices and environments that are conducive to national wealth creation as well as employment opportunities. It does not usually help to have bloated work-force, but at the same time the sector has collective responsibility to create reasonable numbers of decent jobs, including support services. It is incumbent upon the regulator to ensure, for instance, that nationals, indigenous peoples, minorities and women are not discriminated against in any way by the operators. There has also to be deliberate efforts to encourage spill-off effects that will stimulate growth of supporting small-to medium enterprises (SMEs), without unduly stifling importation of technology and skills where justifiable.

The management of international relations constitutes another arena of political activity for regulators. Those regulators whose countries are members of international institutions, such as the WTO and the ITU, need to align their policies with relevant international guidelines. For instance, the usage of scarce resources, such as the frequency spectrum, requires coordinated inter-national allocation without which services based on wireless communication systems could collapse.

2.13 Meeting Economic Goals

Healthy relations between operators and regulators are essential for the effective performance of the market and are often characterized by symbiotic relations between participants. This is true

for the telecommunications market, where service providers are dependent on effective regulation in the era of competition and regulators are dependent on obtaining accurate data in order to make informed decisions, withstand scrutiny in court, benchmark, and more importantly to account for the decisions they make. In the telecommunications environment, information is critical for determining tariffs and price caps, network size as well as market performance.

The telecommunications market is particularly information intensive, and operators are reluctant to divulge information which may be used against them by their market rivals. They may also resist divulging information to the regulator on the pretext that the information is market sensitive. Regulators can respond in different ways to this resistance. Often it is best to allay the fears of operators by allowing for confidentiality and clear administrative procedures. Increasingly regulators have also opted to develop security measures in their communications systems, including the establishment of remote hard drives to protect market information. Where operators are especially resistant, regulators can impose penalties to ensure greater cooperation and information disclosure. One only has to review regulation in the United Kingdom to observe the effective use of penalties against dominant players

Operators focusing on the profit margin, often attempt to develop a monopoly over scarce resources, such as, frequency spectrum (TR 504 Module frequency spectrum), numbers, rights of way and space. Some licenses can also be viewed as scarce resources, if regulators limit the number of players they permit to enter the market. Regulators can circumvent monopoly behavior by allowing for equal access to scarce resources in a transparent manner.

The importance of the management of scarce resources can be demonstrated in the numbering environment. In the past, traditional operators determined the numbering scheme. However in the era of competition it becomes difficult to depend entirely on the dominant operator to distribute numbers especially in instances where they resist competition. For new operators entering the market to succeed efficient and reliable number allocation becomes necessary. Whilst the ITU continues to manage the reservation, assignment, and use of numbering resources at an international level in the instance of country codes, at the national level regulators need to:

1. Develop a flexible and expansive numbering plan to assist new operators,

2. Allocate numbering resources (reserving the primary assignment of blocks of numbers and freeing secondary and tertiary assignments)

3. Ensure consistent management of resources (including monitoring capacity shortages). In the process they need to consider that numbers should be easy to remember, they should not change frequently and numbering schemes must support equal access. Regulators also need to ensure that they obtain the authority to reclaim unused numbers.

Access to numbers is not an automatic right. In some countries such as Denmark, applicants must provide a description of the intended use of the numbers, number series, network addresses and five year plans for the development of their telecommunications services.

2.13.1 Improving Performance of Operators

Traditional monopolies, which did not compete in the provision of services, are often portrayed as slow and reactive, rather than proactive toward competition. New carriers on the other hand adopt the helpless victim response, often lobbying for special treatment, such as piggy-backing on the incumbents network rather than building their own. It is in the regulators' and the market's interests that the operators strive to improve their performance: measured according to service delivery, network expansion, consumer satisfaction, reasonable profit margins, innovation and fair practice. Furthermore, the operator's behavior is a reflection of the effectiveness of the regulator. Efficient and responsive operator suggests effective regulator, and badly performing operator suggests ineffective regulator.

Improving performance of some Telecom Operators can be notice on some African Countries as indicated in figure 2.2 below on the penetration rate of mobile subscription
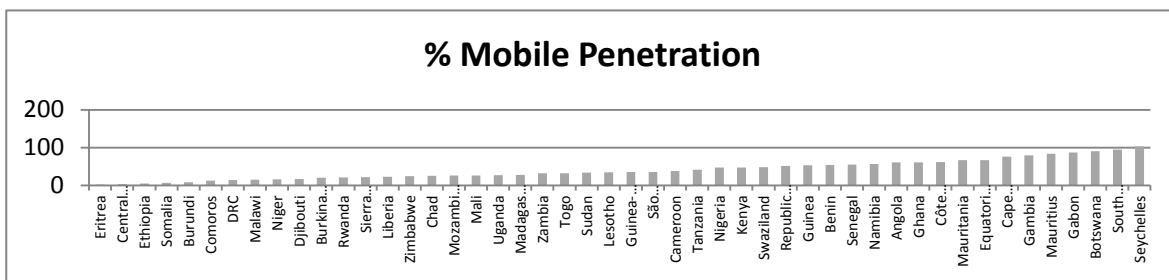
Figure 2.2 (AMI, 2011); Penetration Rate Mobile Subscription

2.13.2 Control and Monitor Prices

Where markets determine prices of traded services, the prices are likely to fluctuate and remain unpredictable. However because telecommunications services are public goods, they cannot be subject to fluidity of the market forces. It is crucial that the prices remain consistent with inflation, but more important that they remain affordable. With the exception of the United States, most Western regulators have used price caps to control the price of telecommunications services. The United States elected to use rate of return pricing. Increasingly many regulators are insisting on cost based pricing to calculate the tariff of telecommunications services. In the process of setting tariffs, the regulator also has to ensure that there are sufficient funds available to allow the operator to invest in network maintenance and development.

2.13.3 Manage Competition

The motive for managing anti-competitive practice is both political and economic. From an economic perspective concentration allows inefficiencies, eliminates small evolving businesses and negatively affects consumers. From a political view, economic concentration can be converted into political power, which can be used for abusive objects including securing preferential treatment from legislators or accessing decision making forums.

In an environment where a license is required for the provision of service, the regulator is able to determine the degree of competition and market size. At the same time the regulator is also able to guide the behavior of the competitors. Consequently, it is important that regulators promote the principle of fair practice for the benefit of the market. Anti-competitive practices can harm market integrity as well as the reputation of regulators. However, some countries, including South Africa, have opted to transfer the anti-competition monitoring activity to a separate agency, which investigates and presides over unfair practices such as excessive pricing, obstructive collusion, and aggressive takeovers or mergers.
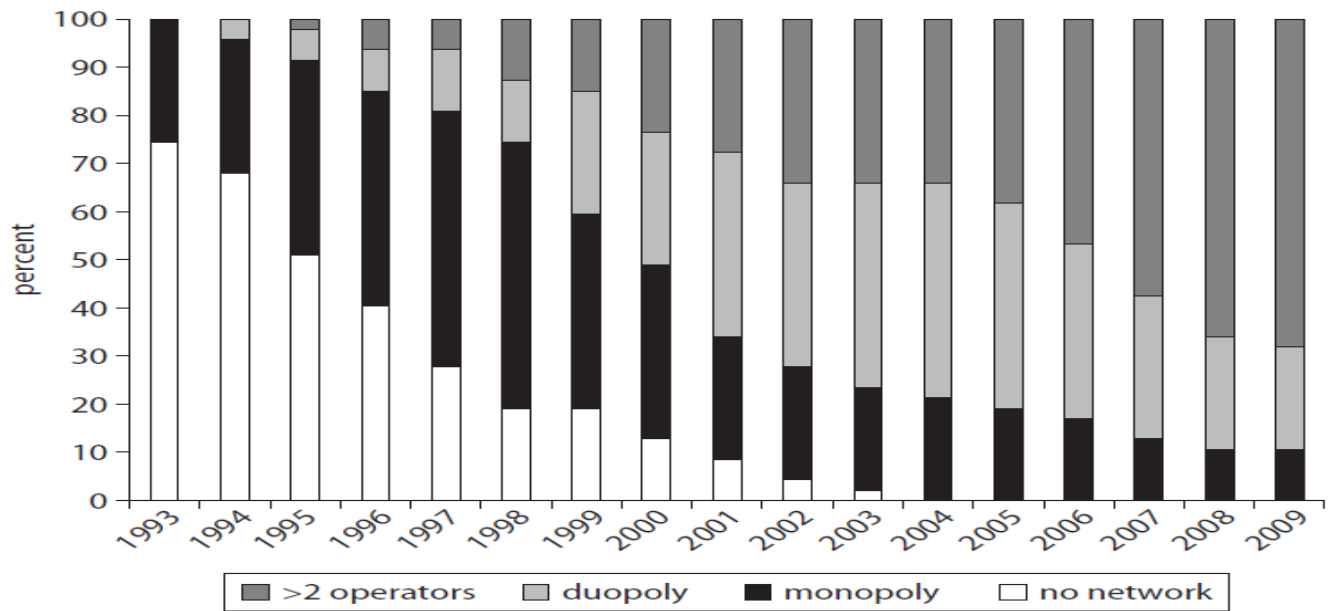
Figure 2.3 Competition in mobile market in Sub-Saharan Africa, Source: ITU 2010

Different aspects of anti-competitive behavior are managed differently by different authorities. Merger reviews are managed mostly by competition authorities. In some countries ministerial input into the process is required, in others additional measures such as merger legislation is available to merging companies. Examples of the latter can be found in the United States where commissioners have to

- define their markets
- list the firms participating in the market and their market shares
- List possible adverse effects of the merger
- analyze barriers to market entry
- evaluate possible efficiencies arising from the merger

After conducting required research and investigations: the competition authority may undertake to prohibit the merger, or enforce divesture or provide conditional approval. A review of some of the European Union's decisions has shown that all three options were applied in different merger cases between US and European companies. Of the three options conditional approval remains the most cumbersome because it requires constant monitoring of implementation. Figure 2.3 and 2.4 needs more effort for African Nations also an indication of potential ICT investment.
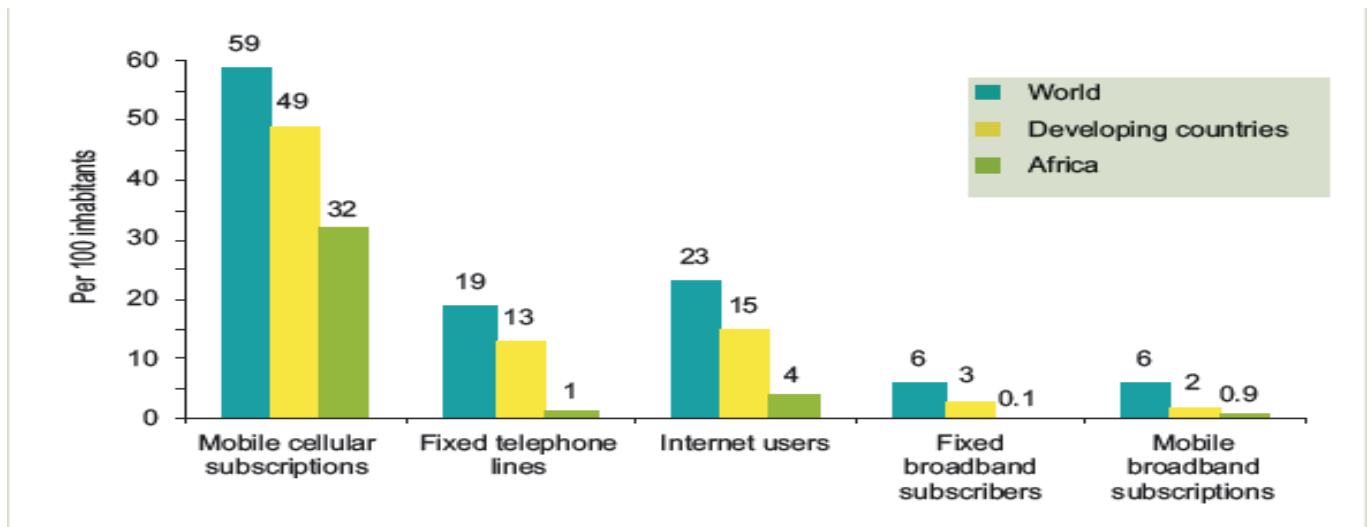
Figure 2.4 Information Society Statistical Profile (extracted from ITU Database)

2.13.4 Determine market structure

There are three types of market structures namely: Monopoly, Duopoly and Oligopoly. Monopoly is associated with traditional market structures, where one supplier supports the whole market to the extent that it determines output (number of telephone lines, subscribers and bandwidth) as well as price. During the early phases of liberalization and market restructuring in the United Kingdom, the notion of duopoly became fashionable. Duopoly is said to be established when two operators are permitted to determine output and price in a market. There is generally little competition between duopolies, as evinced in South Africa and Botswana where the prices and service of the two mobile operators have remained similar despite competition. Oligopolies emerge when few companies control out-put of a commodity, limit price competition, maintain barriers to entry and generally maintain high prices and profit levels, as in the case of software companies.

There is no natural transition from one type of market structure to the next. Experience has shown that the number of entrants should generally correlate with market size, if there are too many firms in a small market, and then some firms will soon collapse. It is important that regulators conduct market analysis before planning and implementing a liberalization strategy. The numbers of licenses they issue suspend and revoke in the market impact on the market

structure and growth. It should be noted however that in the telecommunications environment, the market is not only defined in geographic terms. Markets are also defined in functional terms; there is a market for the end product (telephony services to customers) and another for the intermediate (resale segment). Today regulators are further challenged by the complexities introduced by convergence, which has played havoc with the notion of segmented markets. Ultimately, regulators will need to work more closely with operators if they hope to manage evolving convergence.

Regulators in developing countries in particular also need to consider creative means of fostering the development of SME's (small to medium sized enterprises) as they shape their individual liberalization strategies. The difficulty of restructuring markets in order to create SME's where public operators are dominant is best illustrated in South Africa, where legislation was required to usher the entry of new service providers.

2.13.5 Dispute Resolution

In most countries, it is the regulator's role to resolve interconnection disputes. The WTO Regulation Reference Paper requires signatories to the Agreement on Basic Telecommunications to establish an independent dispute resolution mechanism. The paper requires recourse to an independent domestic body to resolve interconnection disputes within a reasonable time. This may be a regulator or another independent body

The degree of independence of regulators varies in different countries. In some countries, the regulator is a government ministry, or a government agency, that also has a responsibility for the operation of a state-owned incumbent. Many observers would not consider such a regulator independent for the purpose of resolving interconnection disputes. While such a regulator may technically be in a separate organization from the incumbent, it has similar interest. Both are a part of the government telecommunications bureaucracy. Both may consider the financial and operating interest of the incumbent as their prime concern. In such a case, other independent dispute resolution bodies should be considered [5], [7].

2.14 Meeting Technical Goals

In the telecommunications industry, interconnection refers to the establishment of electronic linkages between service providers so that they can conduct business transactions electronically. In short, interconnection is e-commerce or business-to-business trading between and among carriers. Consider these other definitions of interconnection:

This section applies to linking with suppliers providing public telecommunications transport networks or services in order to allow the users of one supplier to communicate with users of another supplier and to access services provided by another supplier, where specific commitments are undertaken.

While definitions cannot encompass the complexity of the matter, loosely speaking interconnection comprises the commercial and technical arrangements under which service providers connect their equipment, networks and services to enable customers to have access to the customers, services and networks of other service providers

International Telecommunication Union, The Changing Role of Government in an Era of Telecom Deregulation - Interconnection: Regulatory Issues as appeared in the Report of the Fourth Regulatory Colloquium held at the ITU Headquarters.

The physical connection of separate telephone networks to allow users of those networks to communicate with each other. Interconnection ensures interoperability of services and increases end users' choice of network operators and service providers [8].

When you look closely at the definitions above, there are similarities in the use of expressions like linking networks, connect their networks and physical connection of telephone networks. The emphasis is on a way two or more networks seamlessly link to each other. This in essence makes interconnection a very vital issue in telecommunications as it can be used as a tool to enhance universal service.

2.14.1 Importance of Interconnection

In a competitive marketplace, there are a number of reasons why service providers need to interconnect with each other:

- New entrants need access to the networks of incumbents so that they can resell services.
- Competitive voice, data, and wireless carriers need access to "last mile" facilities to deliver services to end users.
- All carriers need access to each other's back-office systems to fulfill number portability mandates and to exchange the forms and messages involved in fulfilling customer orders.

Thus, in the telecom industry, interconnection or e-commerce is not just a way to make business relations easier. It is, literally, the key to competition. Without those linkages, competition would simply not be possible.

On a national level, interconnection is complicated enough, involving a tangled web of relationships among different types of providers. Interconnection on a global scale is further complicated by diverse languages, cultures, markets, regulatory environments, and technical idiosyncrasies. That's why the "technique" used to achieve interconnection is all-important. That technique becomes, either the facilitator of or obstacle to competition and the spread of communications services around the world [9] [10][11].

2.15 Sharing Infrastructure

Extensive infrastructure is required to build telecommunications networks. Key supporting infrastructure includes poles, ducts, conduits, trenches, manholes, street pedestals, and towers. Sharing of such infrastructure can significantly increase the efficiency of telecommunications supply in an economy. The same is true in the case of sharing building space in exchanges to permit two or more operators to co-locate their cable and radio transmission facilities and related equipment collocation permits direct (or near-direct) access to exchange switches and local access lines .

Availability of infrastructure sharing and collocation can significantly decrease barriers to competitive entry. The acquisition of right of way and other permits required to build pole lines or towers, dig trenches or install ducts and conduits can be very time consuming and expensive. In some countries, only government entities, such as the incumbent operator, have clear legal authority to obtain right of way, occupy public property or expropriate private property. Sharing

of infrastructure and collocation can reduce costs for the new entrant, and at the same, time provide additional revenues to incumbents.

An added benefit is reduced environmental impact and public inconvenience. Competitive entry into telecommunications markets has led to a proliferation of cellular and microwave towers, aerial pole lines and road trenches in many municipalities and other local administrations.

Some regulators require incumbents to permit infrastructure sharing and collocation of a new operator's transmission facilities in their exchanges. Other operators, including new entrants, are frequently required to cooperate as well, at least in the sharing of infrastructure that is seen to be environmentally degrading, such as towers. In some countries, third parties that own support infrastructure, such as electrical power utilities, are also encouraged to participate in sharing arrangements.

In some jurisdictions sharing of infrastructure occurs without regulatory intervention. Both sharing parties can benefit from the arrangements. In these jurisdictions, sharing of infrastructure is often seen as a matter to be freely negotiated between operators. However, as with other interconnection issues, there is often an asymmetrical market situation. In some cases, incumbents resist sharing their infrastructure. In these markets, regulatory intervention will be required to implement efficient sharing and collocation arrangements.

 Steps regulators can take to promote sharing of infrastructure and collocation.

Develop Regulatory Policy

- Publish a regulatory policy encouraging infrastructure sharing and collocation
- Encourage local authorities such as municipal governments to support and facilitate infrastructure sharing
- Encourage reciprocity of infrastructure sharing (i.e. new entrants should be required to size and build their facilities to permit sharing with incumbents and other operators)
- Require incumbent operator to publish a standard offer and price list for access to key infrastructure: poles, ducts, conduits, tower space etc.

- Incumbents should be required to provide information on the location of infrastructure, and capacity available for sharing (e.g. capacity in ducts, towers).
- A joint committee of operators should be established to plan infrastructure capacity, co-ordinate permits from local authorities and improve the mutual efficiency of the infrastructure provisioning process
- Operators should be able to reserve capacity in advance on reasonable infrastructure provisioning process
- Price of Shared and Infrastructure Collocation Regulators should encourage development of clear pricing guidelines (the following guidelines are illustrative only)
- Normally, incumbents and other operators should be able to recover at least their direct incremental costs of sharing, plus reasonable overheads
- Additional price components may be subject to negotiation and regulatory dispute resolution
- Prices for collocation and infrastructure sharing should generally be unbundled so that the operator requesting access is only required to pay for the services it uses
- Cost of new infrastructure should be shared among 2 or more operators in proportion to their use of the infrastructure (e.g. number of antennae located on a microwave tower)
- Costs of increased capacity and re-location of infrastructure should be shared among those that benefit from works required to accommodate a new entrant, it should normally not pay, unless and until it benefits from such works. An alternative approach is to allocate the costs among sharing operators based on use, with a surcharge for the operator that requests the work.

Future sharers of infrastructure should reimburse early entrants for expenditures that benefit them [12].

2.15.1 Regulatory Safeguards

• Shared infrastructures should be made available to all operators on a non-discriminatory basis. This includes the owner of the infrastructure. Capacity should normally be provided on a first come, first served basis. The regulator should approve rationing schemes for scarce capacity

• New entrants (or other operators) that do not use ordered infrastructure capacity within a set time period should be required to return it. A penalty for excessive orders may also be appropriate

• Operators that provide shared infrastructure should record and have available for regulatory review: provisioning times for their own operations and competitors

Physical separation of infrastructure (e.g. by walls or fences) may be warranted where necessary to prevent sabotage, but operators should be encouraged to share in the most efficient manner.

Once there is clear regulatory direction that infrastructure sharing and collocation must be permitted, operators are sometimes able to negotiate mutually acceptable sharing arrangements. In many other cases, however, regulatory direction or dispute resolution has been required to finalize sharing arrangements. Regulators seeking to expedite sharing arrangements may want to provide advance guidelines on such arrangements, after taking into account the views of incumbents and new entrants.

Some of the main issues that arisen in relation to infrastructure sharing and collocation are:

• Rationing of space between incumbents' future requirements and current and future requirements of various new entrants; reservation of future expansion space for each operator.

• Pricing of facilities, and costing basis for the same.

• Access and security arrangements for various operators' equipment. Collocation premises of different operators are usually separated physically (e.g. by wire mesh) and locked.

• Appointment and supervision process for mutual cutovers and work affecting more than one operator facilities, Payments and rates for the same.

• Provision and pricing of ancillary services such as electrical power and back-up power, lighting, heating and air conditioning security and alarm systems, maintenance.

• Negotiation of other lease and/or license arrangements, including issues of sub-licenses on property of third parties (e.g. building owners, right of way owners, municipal and other public property owners), insurance and indemnification for damages

2.16 Types of Regulation

The types and styles of regulation adopted by governments are usually determined by what they want to achieve in economic, social and political terms. This is especially true for the telecommunications sector worldwide. The traditional model of regulation was characterized by government protection of monopolies which generally regulated their own operations, arguably self-regulation. However with the migration away from monopoly based services to competitive markets, most government have elected to set-up agencies, and in some cases commissions to regulate the sector. Some of the agencies were set-up within ministries as in France and Namibia, whilst in other cases they were set-up as separate entities as in South Africa, Botswana and the United Kingdom. This sub-section seeks to provide an overview of the styles and types of regulation prevalent in the sector [13].

2.17 Summary on the ICT Policy and Regulation

- Policy is the basis of Regulation; regulators are delegated to implement the contents therein.
- Policies assume different forms, the Oxford dictionary links Policy to government as a course or principle of actions adopted or proposed by government, Party or Business. (Parsons 1995) indicated that a set of political actions constitute a policy.
- It is a trans-boundary function governments have to consider in promoting and developing a sector like ICT, equally within regional context.
- Need for Involvement of non-Governmental participants or other stakeholders, they do so in order to ensure that diverse interests are embraced and that an attempt to achieved maximum consensus and buy in attained through wider consultation.
- Few African countries already have comprehensive e-legislations (variously referred to as ICT Acts/Bills). A good number are presently in the process of evolving their e-legislations, among them Uganda, Sudan, Kenya and Rwanda
- There are two type of Democratic system, the Presidential and Parliamentary systems. Leaders are brought in through election with Presidential Powers or Parliamentary Powers according to the system of that Country, the Executive and Legislative Powers

are separate distinguished authority's pillars, the Executive presents its Policies, Bills to the latter for approval and enactment into law after the President assents.

- The above brief narrative on policy indicates the process leading to promulgates laws by the concern legal bodies paving way to regulate the sector.

- The road walked by Sudan towards privatization policy .the evolution leading to competition, a process coloured with success and hurdles. It was step by step move through difficulties to attain the current situation harnessed by the modernization of actions, a tedious endeavour but with confident, it gained momentum to the extent of the current stretched fibre optic backbone, an excellent Job due to the clear ICT sector Policy and a National will for reform.

- Public Operators previously had to render services and at the same time have powers to regulate the sector; an isolated case like in the United State of America (USA) exists where regulatory activity was always separate from service provision.

- The scale introduction of liberalization of the ICT and Telecommunication market provoked by growth of new technologies such as mobile communication and internet, availability of capital to expand the service and networks. Inability of the public operators to meet demand efficiently compelled governments to establish regulators to manage the market along National Policy objectives.

- The Government objectives varies from country to country because they are guided by different socio-political and economic challenges, thus not surprising that the detail of regulations also varies across different countries ,what is constant is the acceptance that Telecommunication and ICT now a days is basic right regarded as instrumental enabler to economic growth.

- Regulation is an institutional vehicle that drives policies to ensure that fair play prevails in the market and that consumers are protected, that direct policies to create Jobs in the ICT sector, or policies to alleviate poverty in the societies are implemented by the practitioners in the sector.

- Regulators do fulfill the main regulatory functions within, be it social and political objectives, meeting economic goals as well as meeting technical requirements., these are prime motivations addressing competition issues, consumers concerns, quality of service,

rollout plans to stretch out the network coverage, timely repair of damaged network, attention on cost of services because users need to know what they are paying for.

- Very important point is healthy relations between operators and Regulators essential for effective performance, traditional monopolies, which did not compete in the provision of services are often portrayed as slow and reactive rather than proactive towards competition.

- It is critical that the prices remain consistent with inflation, but more important that they remain affordable, with exception of USA, most western regulators have used price CAPs to control the price of the service, USA elected to use rate of return pricing.

- Regulators have to control and monitor prices, manage competition, determine market structure and manage dispute resolution.

- There Types and Styles of Regulation

- The Types are:

i)   Self-Regulation,
ii)   Asymmetric Regulation
iii)   Incentive Regulation
iv)   Yard stick Regulation
v)   Performance Regulation

- The Styles of Regulation are:

i)   Single Headed and Collegial Commissions
ii)   Industry Specific Regulations and Multi-Sector Regulation
iii)   Regulation of Global System
iv)   Regulation of Content

2.18 The Study findings on the ICT Policy

- Appropriate ICT Policy, taking the case of Sudan indeed has impact it is gearing tremendously to answer the interrogation question that Do ICTs have any tangible

potential to contribute towards meeting the Millennium Development Goals (MDGs) in Sudan? If so to what extent, and in what particular domains and sub-domains? What instruments are supposed to be put in place to harness this potential? What gaps in Policy, Legislation, Human Capital and Institutional arrangements need to be bridged to realize this goal? What best –practice countries can be bench mark from?

- The move of Sudan in the late Eighties paved a smart way for privatization of the market ,it is a breakthrough in the implementation of Sudan Economic reform Policy, practically Sudatel as one of the leading Telecommunication Company started as giant and developed wider backbone network ,fibre optic infrastructure in the Country and has reached all the borders of Ethiopia. Egypt, Chad and Inside South Sudan. That alone answered the question for meeting the targeted goals besides technological changes, moving into digital world, that process created seasonal Jobs as well as permanent Jobs, mini-Companies emerged to Sub-.Contract relevant tasks available like Manholes, construction of Duct and conduit systems, CDMA towers and Microwave connections. , further new telecommunication entrance came in, like Areeba (currently rename MTN) MobiTel (Now named Zain) and CanarTel as GSM licensed Companies indeed CanarTel added New Fiber Optic Network.

- South Sudan on the other hand post- CPA period tried according to the limited powers within the agreement developed ICT sector policy an attempt to leap-frog to the next level appropriate for operators in the sector, highlighting the Policy objective to mitigate the disparities in the southern part of the country with specific policy targets in terms of infrastructure in order to access basic services like internet .Further the government of Southern Sudan also budgeted for construction of state of art building to host the end terminal systems planned, and also strategies to create an environment conducive for establishment of technology neutral framework.

- As was highlighted earlier that Governments are guided by different socio-political economic challenges, they do shape policy to fit and embrace these objectives, what is most important is posting another question whether the leadership of the country is ready to champion the ICT as enabler and a crosscutting tool, benchmarking with Rwanda, now a days is one example, the President himself is leading the ICT in the country to catch up with the modern world.

- I attended in 2007 the Connect Africa function in Kigali ,the recommendations was connecting all African Capital by Fibre Optic ,focusing further to Transform Africa function ,today the committed leaders in Africa are strategizing to smart Africa initiative gearing towards Smart cities of Africa, living example is Rwanda and other countries ,those who managed to strengthen their infrastructure and have constructed Data Centre or Information Centre to host different National and regional data .with that, the study says ICT policy has externalities as a trans-boundary component linking and connecting African Cities to become Smart Cities. Indeed ICT has tangible potentials that contributes towards meeting millennium development goals also leading to sustainable development objectives, there is need now to pass message of concern to countries left behind without Fiber optic Backbone like South Sudan to implement these regional Policies that will bring prosperity to the people in the Country ,be it through poverty reduction, Job creation and even wealth generation.

2.19 The Study findings on the ICT Regulation

- Regulators have roles assigned to them by laws , the study found out that there is need for E-leadership to champion the ICT in order to foster development which be reflected on Poverty Reduction considering quality of services rendered , prices there in ensure affordability and value of money which will have a positive impact on poverty.
- The current Sudan Telecommunication Act 2001 had repealed the previous laws which are The Telecommunication Act 1974 and the National Telecommunication Council Act 1994.the current Act 2001 is in enforce as per the Constitution of the Republic of the Sudan 1998 signed by the President of the Republic ,the new information on this act 2001 is that soon it will also be repealed by the Bill under discussion by the Executive .the study expect that the new Bill shall address the ICT components for the development of ICT industry in the Country, the two important institution in place that NTC and NIC need to be reinforce with necessary regulatory aspects to ascertain empowerment to carry and discharge the role assign there in, considering the regional Network integration gearing towards transform Africa and smart Africa initiatives championed by African Head of State which will answer the e-leadership commitment ,emphasis on the national

Policy to empower the youths this will reduce the high unemployment rate in Country as well as in Africa .

- The emphasis on the e-Leadership is important to impact on prioritizing ICTs and appropriate measures needed to give room for optimal ICT use as enablers in the country, this is to be embedded in the Policy and enforce by the Regulator overseeing compliance, encouraging investment, innovation and infrastructure expansion, promote the private sector.

- Referring to President of Rwanda in his speech in Kigali on Transform Africa 2017 that private sector and University partners in the Smart Africa alliance are an essential part of the efforts for Smart Africa. African Head of States have formed an alliance for smart Africa comprising of 18 member States, all committed to Africa digital transformation agenda.

Chapter III

The Effect of ICT on Unemployment and Poverty

3.0 The Effect of ICT on Unemployment and Poverty

3.1 Role of Government and Private Sector

Speaking at this year's Africa Transformation Forum in Kigali, he said it is time the private sector works with governments to bring this canker to an end, saying: "We need to build our human capital to bring about the development of Africa. (Kelvin Balogun – President of Coca-Cola, Central, East and West Africa)

Specifically, the study seeks to consolidate current knowledge of the links between poverty, employment and ICT, identify good practice with respect to the role of ICT in overall poverty alleviation strategy, and define the role of governments and the private sector in developing and implementing actions to address poverty issues through job creation in the ICT sector. The study, therefore, sought to answer such questions as:

What jobs should be created? What is the role of governments and the private sector in job creation? What strategies are needed for the creation of such jobs? What resources can be used to attain a given level of employment?

3.2 The impact of ICT on Employment and Poverty Reduction in Africa

ICT as an economic sector with the capacity of generating employment opportunities and for contributing to rapid economic growth, highlighting success/failure stories in Africa and other developing countries;

ICT as a sector to leverage the growth and competitiveness of other economic sectors;

The status and socio-economic landscape in general, and the ICT sector in particular;

Evolving guidelines for mainstreaming ICT for development (ICT4D) and job creation into the Poverty Reduction Strategic Plans (PRSPs) and a framework for policy dialogue among the different interest groups;

Highlighting the areas facing imminent threats as a result of the introduction of ICT and the necessary strategies to mitigate job losses;

The challenges but also appropriate mitigation strategies to ICT sector development in the areas of policy, legal and regulatory frameworks, infrastructure development, content, research and development, etc., at national, regional and international levels;

Models for and recommendations leading to an enabling policy environment;

Strategies for the promotion of sustainable employment targeted at the youth and women;

Assessment of national and regional policies (e.g. ICT policies, PRSPs, employment policies, investment and export policies, intellectual property rights, industrial and competition policies, gender, youth, disability, with regard to their support for ICT for poverty reduction (ICT4PVR);

Review of current policy regimes in terms of ICT access and use (telecommunications, information technology or IT, broadcasting) policy, taxation, network security policy, privacy protection, e-trade policy, customs and excise, business promotion – e-commerce, off-shoring/outsourcing policy,

Assessment of the capacity of the private sector (especially micro- and small to medium enterprises - MSMEs) to generate ICT related employment opportunities; and

Productivity measurements such as indicators for linking ICT to employment, productivity and economic growth
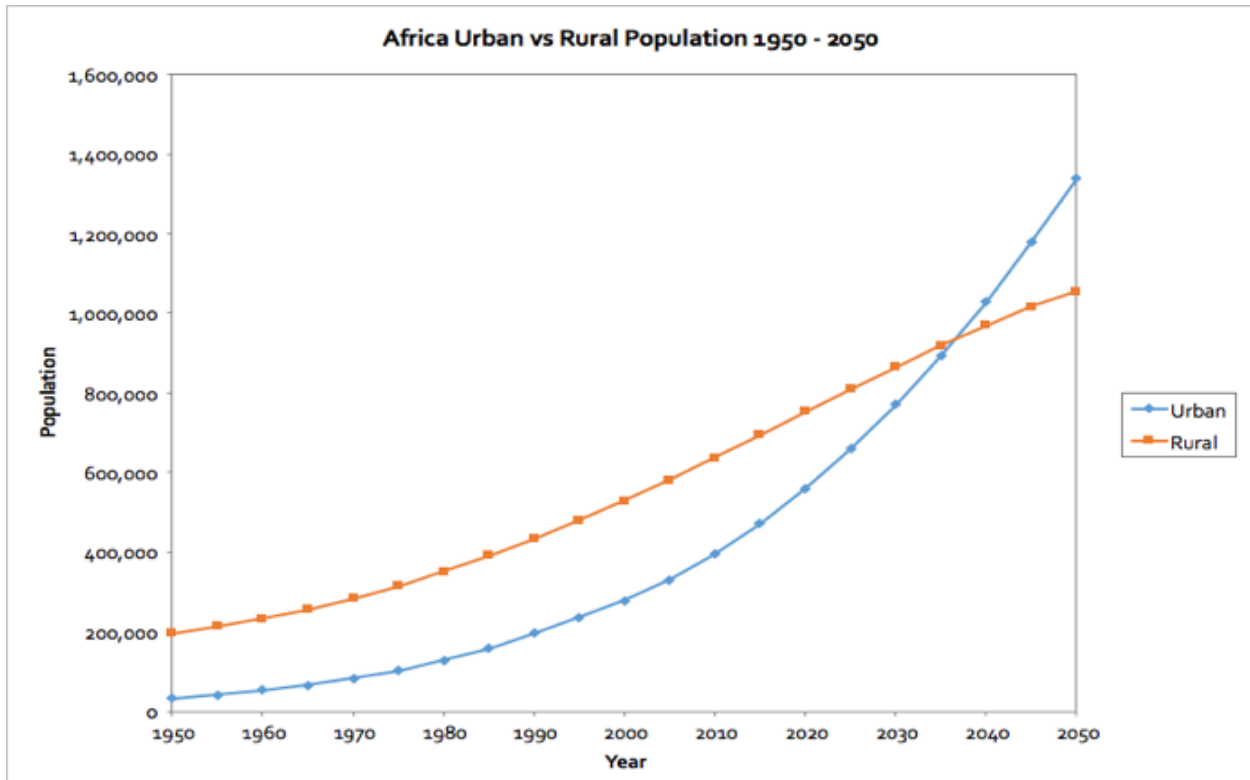
Figure 3.1 growing Africa Urban vs. Rural Population up to 2050

3.3 The ICT Landscape in Africa

Perhaps for the first time in history, Africa has a unique opportunity to catch up with the rest of the world to be part of the modern economy by leapfrogging. Varied efforts have been made by diverse groups – governments, private sector, civil society, etc. – to 'bridge the digital divide', in some cases with modest successes. The mobile phone revolution has witnessed unprecedented growth in Africa, making it today one of the fastest growing, possibly with the best returns in investment. Conversely, the ICT is also one of the fastest growing sub-sectors in several African national economies. Tables 3.1 give some facts about the status and growing investment opportunity of the sub-Sahara African countries.
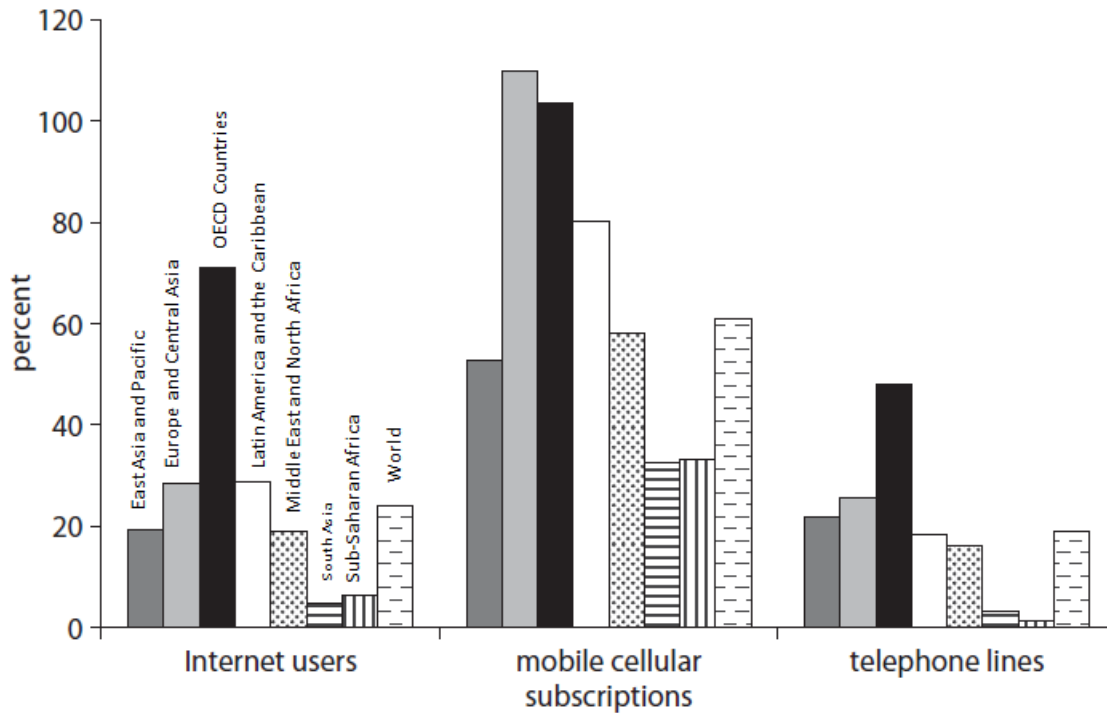
Figure 3.2 ICT Penetration Rate per 100 Inhabitants. Source: Williams et al., 2011

Some countries have unequivocally prioritized ICT, mainstreamed them into their national development agenda and psyche, and evolved very comprehensive policies and roadmaps for ICT adoption. Others have not, though the level of awareness and attention being paid to ICT is generally on the increase across board. Nevertheless, the 'digital gap' is far from bridged.

Most of the African countries have developed poverty alleviation strategies targeted at levels of absolute poverty and promotion of rapid, but sustainable and comprehensive, economic growth. Yet across most parts of Africa, unemployment remains a formidable challenge. The unemployment rate (2005-2006 estimates) stood at 40 per cent in Kenya, 32.4 per cent in Ethiopia, 10.3 per cent in Egypt, 21 per cent in Mozambique, 5.8 per cent in Nigeria, 44.2 per cent in Rwanda, and 41.6 per cent in Uganda. High birth rates and decreased government hiring are among the major factors behind this.

Sub-Saharan Africa continues to be marked by the highest incidence of extreme poverty in the world. Natural disasters, civil conflict and weak commodity prices continue to weigh heavily on the fortunes of many of the poorest countries in the region. The populations below poverty line remain relatively high, for instance Mozambique (70 per cent), Rwanda (56.9 per cent), Kenya

(50 per cent), Nigeria (60 per cent), Ethiopia (50 per), Uganda (31 per cent), and Egypt (20 per cent).
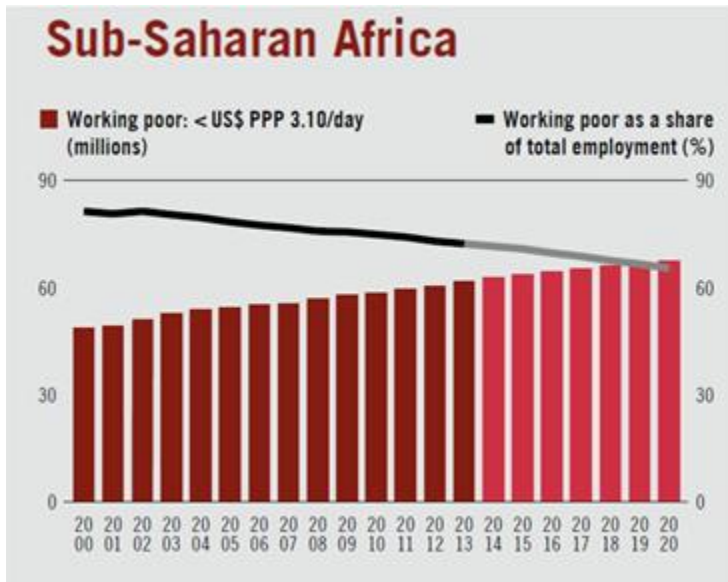
Figure 3.3 Working Poor in Sub-Sahara
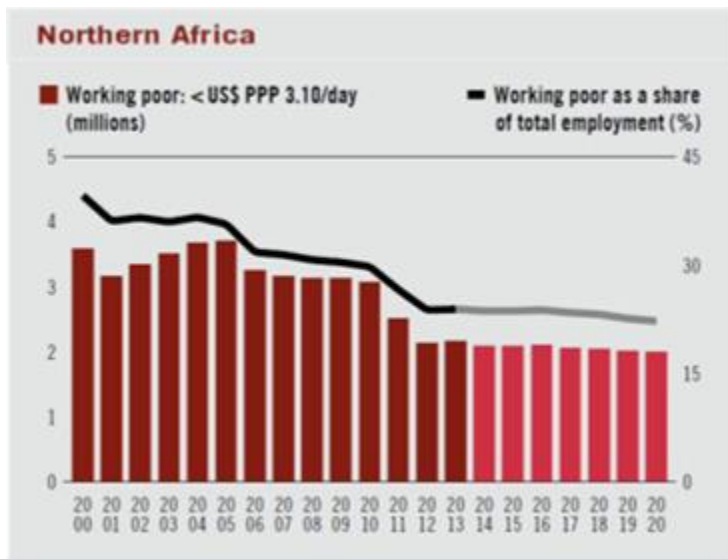
Figure 3.4 working poor in Northern Africa

Figure 3.5   Sudan Unemployment Rate   - Source: World Bank Indicators.

Despite a return to economic growth in many of the African countries, the condition of the vast majority of the continent's workforce is still characterized by declining living standards, rising unemployment and increasing poverty. Africa has the fastest growing workforce in the world, with some 9 million new job seekers entering the labor market each year; unemployment and underemployment are widespread, with informal sector activities accounting for at least 60 per cent of the existing jobs and virtually all new job opportunities (the informal economy accounts for 90 per cent of newly created jobs).

Child labor continues to spread: Some 80 million children are working, often under dangerous conditions and in extreme forms of exploitation. In Africa, 40 per cent of all children between the ages of 5 and 14 are forced to work; 32 per cent of working children worldwide are African.

HIV/AIDS too is a growing problem: The disease threatens to lower productivity, decrease overall demand for goods and services and spawn a new wave of child laborers and orphans, and could well become "the single most important impediment to social and economic progress" on the continent.

Nearly 70 per cent of the African work-force is concentrated in agriculture, often at a subsistence level. More than half the population of Africa, almost 400 million people, lives on less than one dollar a day. It is essential for the recovery of growth to be further consolidated and that such growth is highly employment-intensive.

The study confirms that in many respects ICT do have positive impact in employment creation and poverty reduction in Africa and that the creation of small and medium-sized enterprises holds a great potential to fostering economic growth in Africa.

3.4 The ICT Component in the African Prospective

Although many African countries are beginning to realize the significant role that ICT could play in poverty reduction, there is barely any mention of the use of ICT in their poverty reduction strategy documents (PRSPs). For instance, Nigeria launched the National Economic Empowerment and Development Strategies (NEEDS) in 2003 with some laudable programs and initiatives for poverty reduction but the document was silent on ICT. However, the version two of the NEEDS document does emphasize the need to mainstream ICT in the various sectors of the economy.
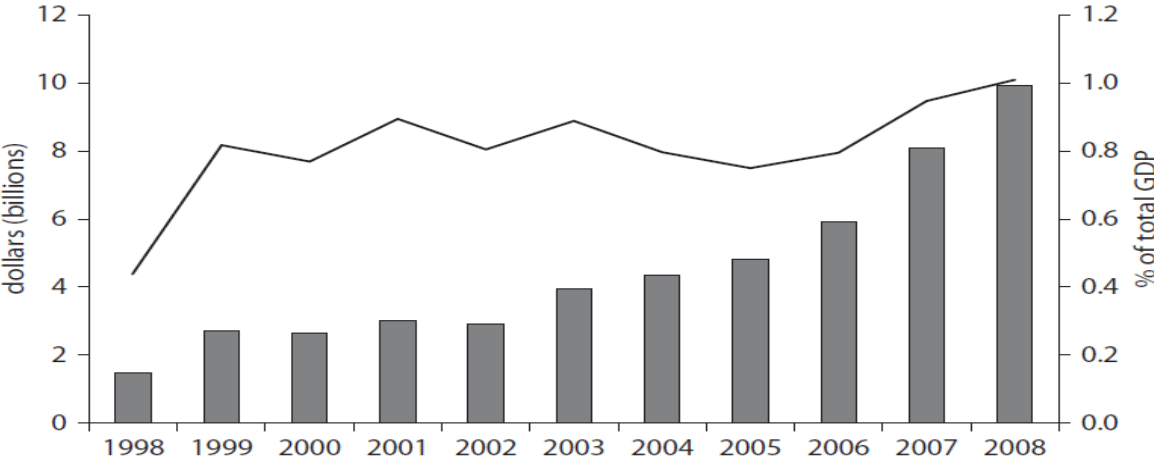

Figure 3.6 Telecom Investment in direct assets in Africa.   Source: Williams et al. 2011, p125
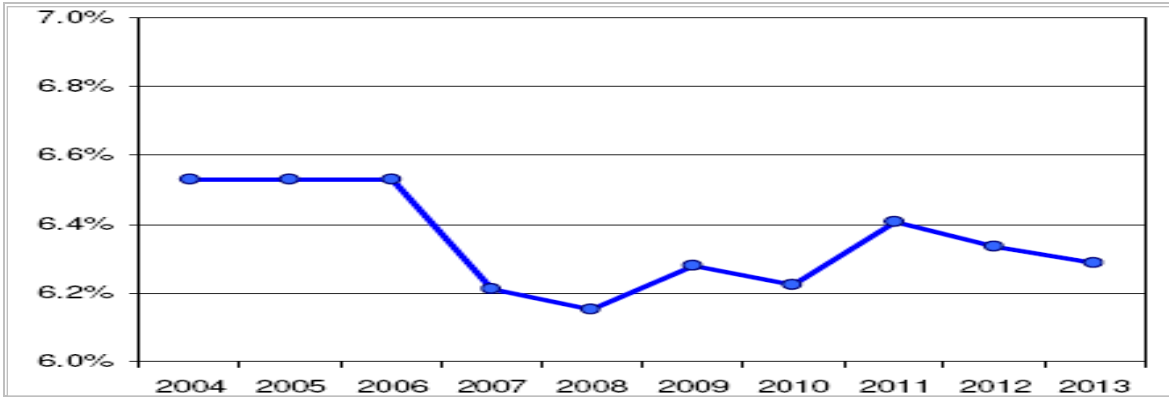
Figure 3.7 ICT investments as percent of world GDP. Source WISTA 2010
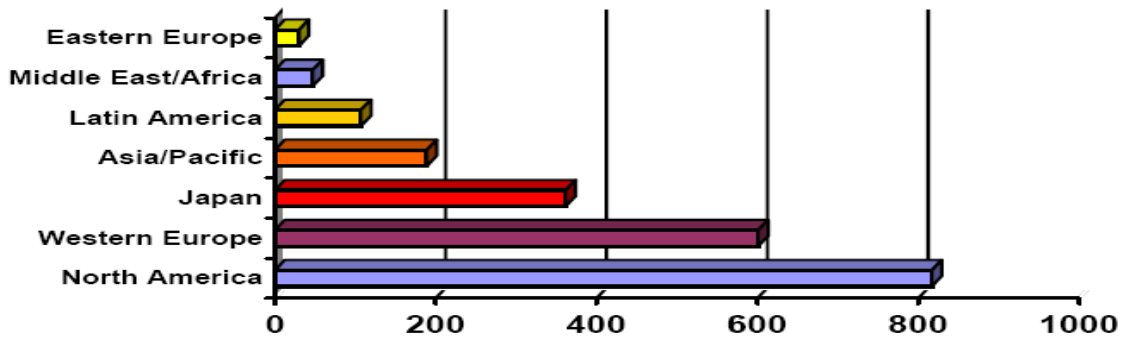
Figure 3.8 ICT investment by region (Statistics 1999). Source: WISTA 2000
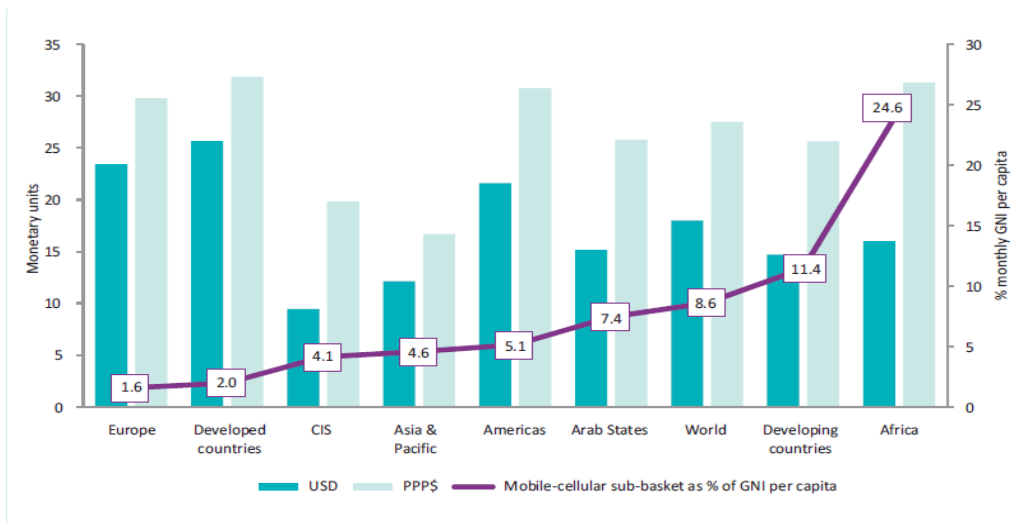
Figure 3.9 Mobile-Cellular Sub-basket by region and by level of development Source ITU 2011

The Government of Mozambique (GoM) PRSP – PARPA II recognizes ICT as cross-cutting issues with the potential to be effective in various poverty alleviation programs, but specific programs are yet to be outlined.

Egypt is one of the African countries that not only emphasizes the need to exploit ICT for the fight against poverty but has actually commenced implementations of programs in that regard. In the new generation PRSPs for both Rwanda and Uganda, ICT have been mainstreamed, with Rwanda recognizing ICT not only as a priority area, but identifying specific ICT development targets to be met by the end of the plan period (2011) to reduce poverty.

As illustrated in Figures above and the availability of investment potential, there is need for every African country to integrate ICT into the Employment and Poverty Reduction Policy formulation and monitor the implementations.

3.5 Social policy context for UK

The Government claims a life-course perspective in working towards a fairer, more inclusive society. There are important links between poverty in childhood and lifelong disadvantage. Experience in early years – through the quality of education and the link to aspiration – is a crucial factor in breaking the cycle of deprivation that leads to unemployment and inactivity. Lack of opportunity to work in adulthood in turn restricts people's ability to build assets throughout their life, save for retirement and achieve security in later life. This in turn influences the ability to break intergenerational disadvantage and under achievement. [14]

In practice, however, from a dynamic perspective current policy has a relatively static focus or, at least, is oriented towards fixed points of transition rather than to lived processes over time. This is exemplified in the Government's approach towards employment. Employment is certainly important to lift people out of and protect them from poverty. However, employment in itself does not guarantee escape from poverty and the Secretary of State for Work and Pensions recently highlighted that 'around half of the children living in Britain today live in a household where an adult is already in work. Transitions from unemployment into employment, while crucial, are only the beginning of a process, and it is through sustained retention in work and progression up pay scales that people will be able to secure poverty free lives.

3.6 Policies, Regulations and Legislation

The national 'environment' in which ICT are expected to flourish is paramount. With an attractive investment environment, for instance, private capital inflows will quickly see a rapid growth and expansion of telecommunications. As of the time of writing, most African countries already had national ICT *Policie*s, It would be disastrous to try to embrace and introduce ICT without a well-structured, policy and implementation framework. Policies alone too are not enough: they are a necessary, but not sufficient condition. They have to be backed with appropriate implementation plans like the famed National Information and Communications Infrastructures – NICI plans that are widely promoted in Africa by the UNECA under the premise of the AISI initiative - or the INTYELCOM-II of ECOWAS countries, the East African Broadband Communications Master Plan inspired by the ITU regulations, and supportive legislation.

Few African countries already have comprehensive e-legislations (variously referred to as ICT Acts/Bills). A good number are presently in the process of evolving their e-legislations, among them Uganda, Sudan, Kenya and Rwanda. Tanzania the Common Market for Eastern and Southern Africa (COMESA) has a model bill that it is promoting among its member states; the same to other RECs. Generally, some of the aspects covered in an e-legislation may or may not include some of the aspects involving electronic transactions and digital signatures (e-Commerce Laws), intellectual property rights, data security/protection, resource sharing frameworks, open access principles, and freedom of information, just to mention a few.

3.6.1 Human Resource and Expertise

Once the appropriate environment and policies are in place, ICT are knowledge- and information-intensive, thus require commensurate expertise and skills. A variety of skills would be needed, and for different levels. They range from technical to managerial, from commercial to legal, etc. For widespread diffusion and realization of a critical mass of users which is essential, general awareness and basic literacy is fundamental. There should be a deliberate human capacity development plan – not only to service the ICT sub-sector – but perhaps the entire 'knowledge economy' and other productivity enhancing sectors.

3.6.2 E-Leadership is King

is the most vital ingredient: e-leadership covered with political will as in H.E. the President of Rwanda, other Head of States are on the similar Political will which has shown e-leadership style like in Tunisia, Senegal, Mozambique, Egypt, South Africa, Nigeria and Mauritius, amongst others), with appropriate, dedicated, self-less and techno-oriented leadership, a country can go far in ICT introduction and adoption, even with limited resources. The emergence of the various 'champions' at the continental level should assist accelerating Africa's accession to the digital world.

3.7 ICT for Poverty Reduction

3.7.1 The Poverty

It is critical at the outset to acknowledge the complexities and the varied dimensions of poverty before one begins to contemplate any form of discussion on human development opportunities provided by the increasing capabilities of Information and Communication Technology (ICT) to meet the needs of the poor. The Nepal Human Development Report on Poverty Reduction and Governance defines poverty and human development that:

'Poverty is a state of economic, social and psychological deprivation occurring among people or countries lacking sufficient ownership, control or access to resources to maintain minimal acceptable standards of living. It represents an exclusionary relationship where individuals or states are denied access to and adequate package of resources".

Human Development on the other hand, is defined as being centered with concerns of widening the range of choices for individuals and communities to pursue economic, social, cultural and political rights and needs by enhancing their capabilities to shape their lives as they wish. The full achievement of human development will theoretically enable them to live in dignity, a long and healthy life, to obtain education and further knowledge, to have control over key resources, to engage in a productive employment of his or her choice, and to participate effectively in activities of community and the state

Idealistic and ambiguously optimistic as it may seem, this broad and all-encompassing menu of demands, in essence reflects the realities and complexities of the range of work that have been

undertaken within the Asia Pacific region by various governments, international donors and development agencies, communities and individuals. It must be acknowledged that the various agendas of different agencies and bodies placed against the needs and demands of the communities themselves have at times placed unnecessary pressures and tensions that either expedite or undermine the efforts that are taking place in the name of human development and poverty alleviation. Hence, it becomes even more critical that due analysis is undertaken beforehand on the co-relation and dynamic links between the proposed poverty alleviation strategies and the aim of achieving sustainable human development.

How does one achieve this, one might ask? Well to begin with, it's imperative that any proposed poverty alleviation strategy begins with ensuring the clear acknowledgement of the specific need and demands based on an in-depth understanding of the social, economic and political environment that the initiative will be undertaken, while ensuring the development of strategies are constantly conceptualized with a larger aim and specific impact in mind.

3.8. Economic capabilities

The ability to earn an income, to consume and have assets, which are essential to food security, material well-being and social status, should be emphasized. These include having secure access to productive financial and physical resources, land, credit and decent employment.

3.9 Political capabilities

A thorny issue in certain countries and areas – they encompass human rights, participatory-governance and the ability to have avenues and resource mechanisms to voice some degree of influence over public policies and political priorities. It has sometimes been championed that the deprivation of basic political freedoms or human rights is a major aspect of poverty, but in essence what is greater degree of importance is the fact that powerlessness aggravates other dimensions of poverty as the politically weak do not possess the avenue of capability to be engaged in the process of policy reforms nor secure access to resources required to rise out of poverty.

3.10 The dimensions of poverty

Although several studies used a range of poverty measurements, the most common was based on relative income, typically using a poverty threshold of 60 percent of the national median income. Government's standard, point-in-time Measurement of the poverty rate vastly underestimates the number of people who Experience poverty over a period of two years or more. In an analysis of the first Two years of the Jarvis and Jenkins found that an average of 17 per cent were poor at any one point in time but that, across the two years, 24 per cent had experienced poverty at least once. The same dynamic was found in later research which suggests that over a six–eight-year period, about a third of the population experience poverty at least once – twice as much as the average point-in-time Poverty rate.

To analyze poverty in relation to a single, defined income threshold, in order to appreciate the full dimensions of poverty and so ensure that policy is accurately targeted; insights about the temporal diversity within poverty need to be matched with understanding of how poverty is differentiated by depth of severity. There Key areas include how and why depth of poverty changes over time, generally and for different social groups, and whether severe poverty is associated more with particular temporal experiences than others. One of the aims of this Endeavour would be for policies to identify and address the circumstances of people experiencing severe and persistent poverty like South Sudan case due to the long un- ending devastating crisis.

3.11 Poverty triggers

The case of Sudan before being split into two the Republic of Sudan and Republic of South Sudan the long devastating war triggered severe poverty in most areas of South Sudan, Western Sudan as well as some parts in eastern Sudan, specifically in the Southern Part of the Country other elements of poverty triggers like inter-tribal conflicts cattle rustling, conflicts between pastoralists and cattle owners grazing land , sometimes situations of crops destruction, drought and famine are elements of poverty triggers   ,the situations mentioned caused internally displaced population these group depend mostly on reliefs .

Causes of poverty can be understood as comprising two elements: the social Characteristics or personal resources of an individual or household which mediate how resistant or vulnerable they

are to poverty, and the event which actually triggers entry into poverty. What triggers poverty for some will not trigger it for others A unique advantage of poverty dynamics research is that, by tracing individuals or households over time, it can identify the events associated with entry into poverty. The economic stability of a household depends on the balance between the household's needs and the income required to meet those needs. An overarching observation on poverty is more commonly triggered by changes in income than by household change. In turn, household change is more important for poverty entry than exit: increased household need is more likely to trigger entry into poverty than decreased household need is to trigger exit from poverty.

The two most common forms of household change which trigger poverty are an increase in the number of children in the household, and a transition from a two- to one-parent household, with the latter having most impact. Although only 3 per cent of household poverty entries were associated with a transition from a two- to a lone parent household, 35 per cent of households experiencing this change entered poverty.

The relative importance of triggers can vary by gender. While labor market events were the dominant poverty triggers for men, for women both labor market and demographic change were triggers, reflecting the fact that divorce and separation are more likely to trigger poverty for women than for men. Wage inequalities and women's relative position within the labor market also mean that a fall in a man's income is more likely to trigger poverty for his spouse than a fall in a woman's income will for her spouse. The same inequalities extend into later life so that retirement is more likely to trigger poverty for single women than for partnered women or men. For older people generally, key poverty triggers include falls in benefit income and, more so, state and occupational pensions. Retirement can represent a poverty trigger, but its impact is dependent on individuals' employment history and associated pension provision.

3.12 At-Risk groups

People who have experienced poverty in the past are most at risk of entering poverty, and that the longer someone stays poor the less likely they are to escape poverty. The   impact of poverty on life chances across the life course and between generations: childhood poverty is associated with low income in adulthood, low income in adulthood is associated with poverty in old age, and the sons of fathers on low income were themselves more likely to be on low income than

high income in adulthood. in terms of age, poverty risks appear to accumulate at the extremes of the life course. The younger the child the higher the risks of poverty at the other end of the life course, for example, found that during a six-year period, 56 per cent of pensioners were poor at least once compared with 31 per cent of working-age adults.

risk of poverty by mediating employment opportunities and wage potential. Birth cohort studies have observed that education serves as a 'transmission mechanism' for disadvantage: childhood poverty is associated with lower educational attainment which, in turn, is associated with low income in adulthood. In terms of year-on-year dynamics, McCulloch for example, records that individuals with a degree-level qualification had a 56 per cent lower probability of entering poverty than an individual with no qualifications. A number of studies argue that low educational attainment is linked more strongly to persistent than to transient poverty. Poverty prevalence and persistence are more acute in urban than rural areas generally, Gilbert argue that poverty rates are lower in accessible rural areas and that remote rural areas share similar poverty rates with

3.13 Persistence and consequences of poverty

Rather than particular risk factors being associated with either shorter-term or longer-term poverty, a sliding scale of poverty persistence results from an accumulation and intensity of risk factors. There is a general consensus in the study case about who is most at risk of persistent poverty namely the Children, Lone parents, Older people, Workless households

3.13.1 Disabled people and people in ill health.

For each of these groups, risks of persistent poverty will be accentuated by a number of factors. For children these include having a larger number of siblings, living in a one-parent household, and living in a household headed by an adult with low educational attainment. For adult groups, risks are accentuated, for example, for those who are unemployed, have weaker employment histories and lower educational attainment, and for those with a larger number of children and younger children in their households or, in the case of older people, for those who live alone. Even on a year-on-year basis, poverty is associated with an increased risk of future poverty. Moreover, the birth cohort studies captured in this review show clearly that the consequences of poverty can extend across the life course and span generations. Poverty suppresses people's life chances in terms of educational attainment and employment opportunities. Women who experience poverty in childhood are more likely than those who did not to become mothers at a

young age and lone parents. Although the causal relationship between poverty and ill health and disability can be debated, there is certainly a significant relationship between the two. It is striking that the consequences of poverty highlighted in birth cohort studies closely match key characteristics and factors emphasized in the year-on-year observations of persistent poverty. This serves as a stark observation of how the consequences can themselves represent risk factors for future poverty and, hence, marks the urgency of the need to genuinely eradicate poverty and halt these cycles of disadvantage.

3.14 Escaping and avoiding poverty

The events and factors which lift people out of poverty and offer protection from poverty mirror those which trigger and increase risks of entering poverty. For example, because most income mobility is short-range (whether at the top or bottom of the income distribution), there is a sense in which not being poor in the past reduces the chances of becoming poor in the future. The single most common event to trigger an exit from poverty is an increase in the household head's earnings, including movement from unemployment to employment or increases in working hours or pay. Increases in the earnings of other household members are also important. For example, Oxley found that households moving from having one earner to having two earners had a greater probability of escaping poverty than households moving from having no earners to having one earner. Increases in the number of workers in a household were more important for poverty exit than an increase in the wages among household members. Employment is also the most robust factor for keeping people out of poverty. Even having one adult in work helps: over 60 per cent of two-parent families where just one adult was in full-time work (and one was not working) remained out of poverty, compared with only 13 per cent of families without a worker. Individuals in households with one full-time worker were twice as likely to avoid poverty as those in households with part-time workers who, in turn, were more than twice as likely to remain out of poverty as those without workers [15].

The poverty resistance depends not only on the number of employees in a household, but also on household members being in full-time and sustained employment. Educational attainment is important, serving as a factor which protects people from poverty, rather than as an event which triggers poverty exit. Although employment change is more closely associated with poverty exit and resistance, Jenkins found that almost a fifth of poverty exits were associated with household

change – presumably involving a decrease in the number of household members. The prevalence of the dynamic whereby household change triggered poverty exit was above average for working-age adults without children. While this might be explained by, for example, the departure of a workless member of the household (thus lowering need and increasing income), The impact of movements of individuals in and out of households may not be among the Dominant themes for poverty dynamics (with the exception of transitions between lone- and two-parent families) but it stand out as one of the most opaque. Further research would be useful to make transparent the various types of household change and how they trigger poverty entries and exits. In terms of poverty resistance, household stability and continuity – rather than change – more commonly offer greatest protection. That is, poverty risks are less for individuals who maintain couple households and avoid separation, and who remain childless or do not increase their family size (thus have fewer children). Poverty exits can be triggered by improvements in household members' health, but only a minority of those experiencing such improvements left poverty as a result. Staying healthy seems to be important for avoiding poverty. Employment change has greater impact than family change for women, but it has less relative impact for women than for men. Household change, while far less important for triggering poverty exit than employment change, is likely to be more important for women than men. For lone parents, household change – including movement from one- to two parent households – is more significant for poverty exits than for other households. However, over 70 per cent of poverty exits among those in lone-parent families were related to employment changes – even though the efficacy of employment to trigger poverty exit was less for lone parents than for other households.

With regard to poverty resistance, there is some evidence to suggest that – for lone parents remaining without a long-term partner – slightly better protection from poverty is afforded by maintaining stable lone-parent households rather than experiencing short-term partnerships. The events and factors associated with poverty escape and avoidance for households generally are similarly important for children. The dominant factor triggering poverty exit is an increase in the number of full-time workers in the child's household. Employment and family stability are the main protective factors for children. Children in households with one or, especially, two people in continuous employment were most protected. Continuity seems a key, and indeed Adelman suggest that children in households with no workers in each year were at less risk of poverty than

those in households where people had moved out of – or in and out of – employment. Children in two-parent families are least likely to enter poverty. Children in stable lone-parent households were less likely to enter poverty than those in families which had moved in and out (or out and in) of lone parenthood. Only 5 per cent of poverty exits at most among older people were associated with

Employment change, although for those who did experience increases in the number of workers or wages in the household nearly 90 per cent exited poverty. A far more common exit trigger for older people was increases in personal and occupational pensions or savings and investments which accounted for 30 per cent of poverty exits among single pensioners and 48 per cent among pensioner, couples in old age seems to offer some protection from poverty, though the greatest protection is associated with having had sustained work histories and receiving a good pension.

3.15 Poverty dynamics: lessons for policy

One of the overarching implications of poverty dynamics research for social policy is the need to adopt a more differentiated classification of poverty. Recognition of transient poverty, recurrent poverty and persistent poverty, respectively, would seem to be a vital step towards improving the effectiveness of policy in targeting anti-poverty initiatives and evaluating those initiatives. Cutting across this, greater understanding is needed of how poverty varies in relation to the depth of severity. Another overarching implication of poverty dynamics research is the need for policy to adopt a more dynamic perspective. In most government research, poverty is defined in relation to a relative income threshold: those whose income falls below this threshold are defined as poor; those whose income exceeds this are not.

Poverty dynamics research reminds us that poverty does not work like this, and that escaping poverty is not simply a matter of stepping over a line from one fixed state to another. Instead, poverty is dynamic: it relates to people's circumstances over time, and these circumstances are subject to change across the life course. Lifting people above the income poverty threshold at one moment in time is no guarantee that they will remain above that threshold. If their time above the threshold is short-lived, it is unlikely to represent a genuine movement out of poverty in terms of their material conditions (let alone in terms of the consequences of poverty for life chances, such as poor health and absence of occupational pension provision).

Indeed, the extent of recurrent poverty and the churning of the same people in and out of poverty. This means that if social policy focuses only on poverty exit, and not on keeping people out of poverty, it is likely to devote successive waves of resources on many of the same individuals and because many of these will still return to poverty, efforts to eradicate poverty will be inherently undermined. What this suggests is the need for policy to broaden its perspective from one from which change is viewed simply as transitions between fixed states (e.g. poverty to non-poverty or unemployment to employment). Instead, a dynamic policy perspective is required to address poverty dynamics, one which views change as processes in the context of the life course. The main thrust of the Government's strategy to combat poverty is through Employment. The research endorses the fact that this indeed should be the primary approach, employment is the surest factor in triggering exits from poverty and protecting from entry to poverty, Workless families and children in workless families are among those most vulnerable to persistent poverty, as are lone parents and disabled people – groups, however, poverty dynamics research also identifies that loss of employment is the single most significant cause of entry to poverty.

Although the entire process where people slip from employment into wordlessness, the issue of job retention remains understated in current policy. Provision for 'making work pay' through tax credits is likely to help retention, but can only be a partial measure. The research also highlights that employment does not guarantee freedom from poverty. Working Tax Credit is important for reducing in-work poverty, but the Government acknowledges that in-work poverty remains a substantial problem. For many individuals, in-work poverty is likely to be a consequence of a lack of job progression. Furthermore, from a dynamic policy perspective, entry into employment represents a single point of the broader process of 'being in work' and thereby exiting and remaining out of poverty. From this perspective, job retention and job progression are important to ensure that the Potential for employment to secure genuine (sustained) freedom from poverty is realized.

Current policy addresses these issues to a limited extent by working to improve education and skills and piloting employment retention and advancement, Initiatives for selected client groups but, overall, policy to improve job retention and Progression is markedly underdeveloped.

Sustained, progressive employment is crucial for escaping and avoiding poverty not only on a year-to-year basis, but also across the life course as a whole.

The higher incidence of poverty among women and persistent poverty among older people is rooted in the quality of their employment histories. The higher risks of poverty for these groups will be difficult to reduce without operational zing a life-course perspective, life-course perspective highlights that employment history constitutes both periods of employment and transitions between employments. For many, these transitions will be interspersed by periods out of employment, for example unemployment, to undertake childcare, or illness. Currently, these points of transition represent 'flash points' for entering poverty. For example, loss of work is the most common trigger of poverty, movement from a two- to lone-parent household often coincides with job loss, and children with a parent moving in and out of illness are just as disadvantaged as those with persistently ill parents. Recent policy is more sensitive to the potential problem of financial volatility when people move from benefits into work. This is apparent in provisions such as the Lone Parent Benefit Run-On and Linking Rules for disabled people. However, there is not the same attention given to 'smoothing' the income of people moving from employment to benefits.

Greater support for individuals at these points would reduce recurrent poverty. The literature suggests that those who experience poverty are more likely than those who did not to become poor again in the future. This means that protecting people from entering poverty in the first place at these risky points of transition is likely to keep some at-risk households free from poverty throughout the life course. Poverty reduction is the overarching objective for most of development oriented organizations and it will remain so since poverty persists as a pervasive and devastating condition in most developing countries. Poverty has many root causes. While it is primarily related to very low-incomes, it is manifested in many dimensions, especially malnutrition, ill health, and illiteracy. Attempts to alleviate poverty basically follow two broad approaches: indirect and direct. The indirect approach relies on broadly based economic growth to generate income-earning opportunities for the poor, while the direct approach targets assistance to the poor for their specific basic needs, especially food, health care, and education.

According to the International Labor Organization (ILO) reports, there are about 3 billion people, including 500 million in Africa, surviving on barely US$ 2 a day. This includes 500

million in Africa of which, about 320 million live in extreme poverty with less than a dollar a day, with a substantial number of them being women and children.

However there is a growing belief and realization among Africans that there is enormous potential of ICT as a key driver for social and economic development and poverty reduction, particularly through improved infrastructure, increased applications and better accessibility and affordability of ICT infrastructure, equipment and services as being experienced by the reforming countries. This will create some employment opportunities directly to the poor; it will enhance the activities of the poor and hence increase their productivity by increasing their access to information or lowering of their transaction costs. ICT can also be used to increase efficiency, competitiveness and market access for developing countries, not forgetting the enhancement of women participation in decision making processes and activities

However, experiences world over indicate that some of the major potential beneficiaries of ICT as a means towards socio-economic betterment and poverty reduction are unskilled, illiterate people, living in remote areas, faced with socio cultural and institutional barriers, mainly women and children, who may also speak a minority language, making it even more difficult to reap the benefits of ICT.

These support the belief that the deployment and use of ICT is associated with new patterns of job creation, however they are also associated with job losses. There are indications to suggest that jobs could be lost through three main channels: - obsolescence, automation, and "disintermediation". According to the ILO, consensus reigns on the fact that the highest rates of job creation, job destruction, and job switching occur among the most technologically innovative firms.

3.16 Approaches to Poverty Reduction

Poverty can be measured in absolute and relative terms. Absolute poverty is defined with a minimum subsistence level. For example, a poverty line specifies a dollar amount necessary to sustain livelihood (primarily minimum nutrition) as indicated in South Sudan Poverty Report. It is also characterized by many non-income conditions such as malnutrition, ill health, illiteracy, and lack of access to basic social services. The extent of absolute poverty for a country or a region can be defined by the number or fraction of people living below the poverty line. An

individual is regarded as poor if his or her income falls below the poverty line. Relative poverty is about where people at the bottom stand relative to people elsewhere in the income distribution, usually around the middle. A relative poverty measure might be the fraction of the people with income less than half of median income

Reduction of absolute poverty can be achieved either directly through income redistribution or indirectly through per capita income growth. The direct approach focuses on the provision of basic education, nutrition, health, and access to employment and product markets for the poor.

It arises from recognition that the very poor generally do not have sufficient resources to meet basic human needs and, because of their lack of human capital, in many cases they may not be able to take adequate advantage of the economic opportunities generated by national economic growth. Direct interventions to assist the poor can vary from being essentially re-distributive transfers to being warranted on efficiency grounds alone. The indirect approach addresses poverty through investments and policies that foster economic growth, enhance the performance of markets, facilitate flexibility of adjustments, and increase the efficiency of resource allocation.

Gains from overall growth of GNP and per capita income are expected to bring benefits to the population as a whole including the poor in the forms of jobs and other economic and social opportunities. A large body of empirical evidence shows that sustained national economic growth generally contributes to the alleviation of absolute poverty. Poverty reduction policies are heavily affected by the relative emphasis that a country attaches to promoting growth and raising the real incomes of the poor. The relative emphasis has much to do with the severity of poverty, levels of national incomes, and the nature of the political process for public choices. Therefore, the combination of the two approaches varies country by country and is highly influenced by the specific circumstances at a particular point in time.

It is critical to acknowledge the complexities and the varied dimensions of poverty before contemplate on human development opportunities provided by the increasing capabilities of Information and Communication Technology (ICT) to meet the needs of the poor.

The Nepal Human Development Report 2001 on Poverty Reduction and Governance defines poverty and human development [16].

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Human Development on the other hand, is defined as being centered with concerns of widening the range of choices for individuals and communities to pursue economic, social, cultural and political rights and needs by enhancing their capabilities to shape their lives as they wish.

it's imperative that any proposed poverty alleviation strategy begins with ensuring the clear acknowledgement of the specific need and demands based on an in-depth understanding of the social, economic and political environment that the initiative will be undertaken, while ensuring the development of strategies are constantly conceptualized with a larger aim and specific impact in mind.

Economic capabilities, the ability to earn an income, to consume and have assets, which are essential to food security, material well-being and social status, should be emphasized. These include having secure access to productive financial and physical resources, land, credit and decent employment.

Political capabilities, a thorny issue in certain countries and areas – they encompass human rights, participatory-governance and the ability to have avenues and resource mechanisms to voice some degree of influence over public policies and political priorities. It has sometimes been championed that the deprivation of basic political freedoms or human rights is a major aspect of poverty, but in essence what is greater degree of importance is the fact that powerlessness aggravates other dimensions of poverty as the politically weak do not possess the avenue of capability to be engaged in the process of policy reforms nor secure access to resources required to rise out of poverty.

3.17 Summary on ICT impact on Employment

- Information and Communication Technology (ICT) should be linked to consolidate current knowledge between employments, poverty alleviation and role of governments,

private sector their strategies in developing and implementing actions to address Job creation and poverty concerns.

- African governments at the moment have unique opportunity to catch up with the rest of the world and be part of the modern economy by leap frogging through diverse group to bridge the digital divide. Prioritize ICT and mainstreaming them into national development agenda and evolve comprehensive policies for adoption.

- Some African countries are beginning to realize the significant role that ICT could play Job creation and poverty reduction there barely any mention of the use of ICT in their Poverty reduction strategy ,like Nigeria, Mozambique, Egypt.

- Unemployment still remains a formidable challenge as the rate of unemployment 2005-2006 estimate high. Kenya 40%,Ethiopia 32.4%,Egypt 10.3%,Mozambique 21%,Nigeria 5.8%,Rwanda 44.2 %,Uganda 41.6%.

- Nearly 70% of the African workforce is concentrated in agriculture, often at subsistence level, almost 400 million people live on less than one dollar a day. it is essential for the recovery growth to be further consolidated and that such growth be highly employment intense .

- the elements of natural disasters, civil conflicts and weak commodity prices continue to weigh heavily on fortunes of many of the poorest countries in the region –sub-Sahara Africa is marked by the highest incidence of extreme poverty.

- ICT as an economic enabler has the capacity of generating employment opportunity and economic growth; it is a catalyst to leverage growth of other economic sectors through e-applications.

Need for strategies for the promotion of sustainable employment targeting at the youth and women.

3.18 Summary on ICT for Poverty Reduction

- The complexities and varied dimensions of poverty needs to be acknowledged critically before contemplate on human development opportunities provided by the increasing capabilities of the ICTs to meet the needs of the poor.

- Poverty is state of being deprive from accessing resources.

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- Humans need to be developed by widening his ranges of choices for pursuing economic social rights and enhancing their capabilities to shape their lives.

- It is imperative that any proposed poverty alleviation strategy begins with ensuring the clear acknowledgement of the specific need and demands based on understanding of the social, economic and political environment that will undertake the initiative.

- The concern on economic capabilities which is the ability of the poor to earn an income, to consume and have assets essential to food security, material wellbeing and social status to be emphasis on.

- the concern on the political capabilities is tough issue in some countries, sometimes it has been championed that the deprivation of basic political freedom on human right is a major aspect of poverty, but in essence what is greater degree of importance is the fact that powerlessness aggravates other dimension of poverty as the politically weak do not possess the avenues of capability to be engaged in the process of policy reforms nor secure access to resources required to rise out of poverty.

- the concern that long devastating conflicts like the case of Sudan and South Sudan trigger severe poverty in the affected areas sometimes natural disasters like droughts ,famine are also poverty triggers appropriate Policies need to be put in place .

- Utilizing ICTs industry potential paves way for poverty reduction

3.19 The Study findings on the ICT and Employment

- The unemployment is a critical concern in Africa, as the study is pursuing to identify and recommend an appropriate trend for National Policies and Regulation that uses ICT potentials to create new Jobs Rwanda is one of the least urbanized countries in Africa, with only about 6 per cent of its population in towns, mainly Kigali City. For most other African countries, there is a general exodus, particularly of young males, moving to urban areas in search of employment and livelihood. As has already been demonstrated, ICT allow location-independent work, provided the necessary 'info-structure' is in place. The countries selected for this dissertation are not so different – like several others in Africa – are in the process of rolling out national broadband backbone infrastructures. Furthermore, with the entrenchment and deepening of universal service and access (like is so well being done in Uganda), it can only be expected that sooner or later, there will

be very good spread and country-wide access to quality, (and hopefully affordable) info-structure. With the requisite training, gradual slowing down in rural-urban migration could be witnessed.

- The World Bank report on unemployment of some African countries and government efforts to fight unemployment, like the Countries mentioned below:

- Botswana with a population of 2 million and unemployment rate of 18% developed initiative to fight unemployment.

- Zambia with population of 13 Million unemployment rate 14.1%, Government created technical vocational training schools according to their National Action Plan on youth employment.

- Egypt with employment rate 12.77% initiated youth micro -project that created 750,000 Job, there also online Taxi service Uber provide 2,000 Jobs a month.

- The last selected Country is Benin with population of 10,6 million 2.4% unemployment rate ,embarked on its first digital City that will create 50,000 Jobs.

- Sudan situation is not that exceptional the report provided by Zain group already indicated that 40,000 ICT Jobs created. The above countries have their own national initiatives to create Jobs through ICT sectors and others, indeed a trend towards use of ICT for Job creation which supports the study case for this dissertation and the argument.

3.20 Study findings on ICT for Poverty Reduction

- Study view on Information and Communication Technology (ICT) as enabler for Poverty Reduction is a genuine fact enshrine in the minds as tool for cross cutting sectors development, ICT is found in health sector, Agriculture sector, Commerce and all related financial institutions, educational sectors and the ICT Industry itself.

- The complexities known on poverty with opportunities available in the ICT sector can be address, if poverty is define as a state of economic, social and psychological deprivation occurring among people or countries lacking sufficient ownership, control, access to resources to maintain minimal acceptable standard on living ,ICT is already known as a catalyst ,it has the capacity of generating employments opportunities, ICT can leverage economic growth and competitions of other economic sector .the name given to ICT as

enabler is genuine due to illustration in the chapters on ICT Policy, Regulation and the chapters on ICT Employment thus the chapter on Poverty Reduction.

- Countries prepared Policies specifically in utilizing ICT capabilities to address issues and concerns on matters of Unemployment and the related.

Chapter IV

Research Methodology

4.0 Research Methodology

4.1 Research approaches Qualitative and Quantitative

To measure Policy and Regulation as enablers on the use of Information Communication Technology (ICT) in Poverty Reduction, Job creation and Wealth Generation require identification of appropriate approach and methodology in order to obtain that result, since questions prepared and interviews conducted literally had identified the tangible out come on the responses of some the key local ICT managers, the Regulatory Institution, end users and ICT beneficiaries. As such the Qualitative and Quantitative research seem appropriate and suffice for the purpose of this piece of research.

4.2.1 Primary Approach Qualitative

By applying the qualitative research primarily is exploring on data collected, gaining understanding of the reasons, opinions and motives of the responses as a descriptive type on the field. The strong points that leverage qualitative research methods over quantitative lie in their usefulness for understanding empathetically the implication and the circumstance of the phenomena studied, and the particular events and developments that frame and structure this phenomena over time in real-life and natural settings as said by Kaplan and Maxwell . In the ICT social, cultural, organizational and political contextual evaluation only qualitative research methods are suitable to marvel a feedback; as opposed to the quantitative technique, what differentiate the qualitative research is the ability to grasp direct information from the concrete source; qualitative research methods are designed to help researchers understand people, social and cultural context as indicated by Myers and essentially to expose the access large to the materials of the research and have more visibility as stated by Lincoln , defines it as; "a situated activity that locates the observer in the fields". Though, with the qualitative research the observer will be positioned in front of a perceptible porch, strong and flawless footpath, making the environment more discernible and easy to detect; it consists, as Lincoln noted, of interpretive feedback and material practices with a realistic methodology to know better the nature and the reality of the ICT business and its impact.

4.2.2 Secondary Approach Quantitative

Quantitative research of ICT is very advantageous due to availability of statistics and studies on the web and accessible libraries of the ICT international institutions and communities such as ITU, TWB, UNDP and others. Therefore, ICT is been reckoned as socio-economic technology have attracted for decades the interest and attentiveness of the international communities and development agencies. In the spirit of building a cohesive regional economy, Heads of State of the East African countries have the common vision to ensure integration of the various sectors. This is in tandem with regional harmonization development plans in the region.

With That back ground in mind, this secondary research approach targeting quantitative mode with such efforts to get figures on the strength of ICT as a catalyst focusing on this regional agenda empowers the concerned ICT authorities in pushing implementation plans in their own country; such move was reflected on the information from the interviews conducted.

Chapter V

Interviews, Findings and Results

5.0 Interviews, Findings and Results

5.1 Introductory to the interviewers

Referring to Richard Heeks, the director of the Centre for Development Informatics at the University of Manchester said: "We have to change our view of the world's poor from one that sees them as passive consumers of ICTs, to one that sees them as producers and innovators with the technology".

What Heeks tried to hint and quote at, but yet not alluded to our mind, that ICT is not just about a platform of information delivery, but it is an innovation that also creates new possible livelihoods for the poor and rich alike. the study still refereeing to report evidences Heeks' contention with few supportive examples: In Gambia many beggars converted their affairs into business and became SIM card sellers, In Kerala (India) many unemployed women became data entry operators. From a global overview, ICTs; in GSM mobiles niche market especially, have created millions of new jobs in developing countries; the majority of them are bottommost of the GDP per capita pyramid. ICT has such fiscal and social influence and impact because primarily the information is what people need, how it is delivered to them comes second, but the method of delivery should depend on the local socio-economic circumstances. The mobile smart phones, for the low income population match well cause it is a handheld light device capable to provide that information at minimal cost (in device hardware cost and compatibility, easy software user friendly, easy self-learning, convenient electrical power and equipment maintenance, anywhere portability, immediate push-button access). Therefore, PCs are no more the solution of information access or an essential requirement in most African poor countries and specifically South Sudan; effort/money spent on trying to impose them is as wasteful and useless effort

The provision of information, and communication technology, Internet based services are increasing being recognized as essential elements to promote economic growth and reduce poverty in rural areas. Advances in Information and Communication Technology (ICTs) Computers, electronic networks and Internet based applications along with traditional forms of

communication media like radio, telephone, television have the potential to be used as means to empower poor people, enhance skills, and increase productivity. Share market information on prices and opportunities, improve participatory decision making processes. Governance at all levels.

The Kiosk owners for Phones, Sim Card and Airtime sellers in Juba and also in Khartoum in Bus Stations, Market Places are saying you have to use money to get money (you have to spend money, in order earn more money, more will come by using the mobile phone bought by the first money used. this illustrate that the small medium entrepreneurs using the potentials of ICT to create Jobs so that they earn money on these small businesses.

5.1.1 First Interview

This interview with group of specialist on soft and hardware at Burg Al-Baraka Algeneed Electronic Shop, the Interview with one of an ICT software self-employed with other two hard ware maintenance technicians hiring a shop at Burq ElBaraka which cost them 20,000 SGD, a group of graduates team up in doing ICT activities ,the software technician do mobile phone maintenance and other two colleagues do Hardware maintenance work while the third colleague is selling different Mobile phone models. They have created ICT Job for themselves earning a decent living for their family's .after interrogation they conform that other factors may affect the work like good location in the Center and how to get customers .what is very important they can pay the 20,000 SDG rent cost ,they can feed their families and related social activities ,he went further that there are thousands of similar other colleagues doing ICT business all over Khartoum, Omdurman and Khartoum Bahri and even small shops at different residential area and all Sudan States .it is true to tell you that ICT is really facilitating their living ,they are comfortable in having such Job., he further conformed that ICT can create Jobs like their case ,at same time they are out of poverty line.

The findings which the study can deduct from these interviews that, the importance of ICT devices and appliances in easing life style of citizens solving their software and hardware problems, for others exercising such Job is an employment for them .

5.1.2 Second Interview

with a shop at Alkalaka Lafa (Al Lafa Central Bookshop) A lady with PC inside a book shop typing and rendering e-services to Students seeking admission information to Government and Private Universities, this two type of ICT services is earning her cash sufficient for her living, on daily base she can get customers either students, citizens seeking to print their documents or lawyers preparing legal documents for a court case indeed interesting scenario happening daily

5.1.3 Third Interview

With ICT shop at Sudan University, doing typing services to students, printing documents, photo copier service, binding of documents services and selling of ICT accessories, since this shop is just on opposite side of the University it is being engaged with many customers to the extent of being crowded by students and citizens seeking such services mentioned above..

These three mentioned examples represents thousands of typical such services being rendered in almost all the towns and cities inside Sudan.

5.1.4 Forth Interview

MULTI-Purpose Group (MPG) is local company created by self-employed Software Engineer who stated small ICT business by just selling cartridges ,now grown up to the extent of doing maintenance for Zain South Sudan network, from self-employed person ,he has employed a number of staff helping in managing successful ICT firm.

5.2 Answers from ZAIN SOUTH SUDAN

Do ICTs have any tangible potential to contribute towards meeting the Millennium Development Goals (MDGs) in Sudan?

First and foremost, the question was talking about Sudan but not South Sudan.
Answering the question relating to South Sudan becomes a little tricky.

Importance to individuals of access to communication provided by mobiles, and the resilience of the network compared to other parts of the communication infrastructure. Although similar research has not yet been undertaken in the country, it can be expected that phones must be playing a similar role like in the Sudan. As statistics South Sudan is fully covered with the available working operators with which most started operating after the Comprehensive Peace Agreement.

- **Personal Safety**

It is difficult to estimate how many such cases there might be, but the personal safety advantages of carrying a phone are known by women worldwide. It seems this is likely to be heightened in states of insecurity and conflict.

Back before the referendum, a woman in South Sudan reported on how the phone related to her own feelings of personal safety. She shared her experience of how the mobile phone can be a useful device in warning people of oncoming danger and in cases of emergency:

"It happened one day that a group of men wanted to attack me because they were having personal problems with my husband. Luckily one of my friends knew about the plot and she called me telling me not to use the usual route when coming back home from the market, because these people were planning to attack me on that particular road. So I took another road to avoid them."

- Conflict, Migration and Reconstruction Post-conflict environment in South Sudan

De Bruijn and Brinkman offer some context to the mobile telephone industry in South Sudan. Although the situation in Juba was at that time very insecure, Mobitel now Zain was able to install services in 2003 under government protection. All Mobitel services were organized through the Sudatel telephone installation in Juba, and that is still the case today (Mobitel was fully acquired by Zain in 2006). Sudatel continues to operate its landline services in specific areas in Juba and, as of September 2005, its Sudani mobile telephone network became available. Gemtel started in the SPLA-controlled areas in 2003 using Uganda's country code, while the smaller NOW has been operational around Rumbek and Yei since 2005.

Initially only a few people could use the mobile phone network. During the war the use of mobiles was mostly restricted to the army, government officials and a few businessmen. Almost no women used mobile phones and, as SIM cards could only be obtained in Khartoum, people without a travel permit stood little chance of getting access to the network. Furthermore, civilian mobile phone users were likely to arouse the suspicions of government security forces and this could easily lead to accusations of being an SPLA supporter.

Zain's CEO at that time, Khaled Muhtadi, said the following about the relationship between doing business in both Northern and Southern Sudan: "In the South what we face so far is that the political issues between the governments of the North and the South reflect also in the relationship that they have with and their trust in the Northern companies. We have invested heavily in this relationship and now have a healthy relationship. We intend to roll out our network in several of these states. The governments of these states are welcoming us as they have been waiting for telecom for a long time.

The role of mobile technology during times of conflict has been increasingly understood in other parts of the world. An in-depth study of mobile phone use in Lebanon between July - August 2006 showed how phone usage followed the internal displacement of populations, allowing family and friends to keep in touch during the conflict. SMS also seems to have played a particular role and access to SMS News.

As follow up of the point above, South Sudan recent conflict dating back to December 2013

- **Contributions towards Development**

After independence in 2011, many telecom operators received the opportunity to split or separate from their original operations under Sudan; paving way for businesses to boom as the urge to swap networks, employ local workforce increased which in turn help the government in stabilizing taxes which was previously shared.

The opportunity also opened the door for South Sudanese to venture to the lucrative ISP businesses which supported and still supports development.

Table 5. 1 Zain South Sudan Addressing Deficit in the Country

	Addressing Deficit in the Country	Way forward
	Zain South Sudan addresses only six out of the twelve country deficits identified. The company fails to address: Poverty, Unemployment, High Incidences of Malaria, High Infant Mortality Rates, Lack of Sufficient Infrastructure, and Famine	Peace and Stability will help the Company to rollout and create Jobs and address the deficit
	Zain South Sudan has no initiatives that tackle health issues. The company should consider programs that support impacting malaria rates or the country's high rate of infant mortality	
	Opportunities exist to provide services that target human safety and security.	

5.3 Answers from VIVACELL South Sudan

Vivacell Chief stated The role of reliable communication infrastructure in building the economy of a country cannot be over stated, we realizes the importance of modern communication infrastructure despite various challenges and hurdles faced ,we continued to expand the footprint of the cellular network coverage and capacity. Typical illustration of Vivacell plan below need a glance look to conceptualize the importance of rolling out as they said ,Our success stories achieved so far we called it our four strategies by Building and design efficient network, Network modernization, Expanding both coverage and capacity, maintaining high network quality these strategies shall be achieved through the four main following objectives,

1. Expanding core capacity to 3 Million 2/Expanding radio capacity to more than 2 million

2. Expanding road coverage 4/Improving call set up, drop calls and removing congestion.

Figures 5.1, 5.2, 5.3 below illustration by diagrams showing the current network architecture, the planned network expansion, sites distribution, and the chart coverage map for Vivacell Company in South Sudan
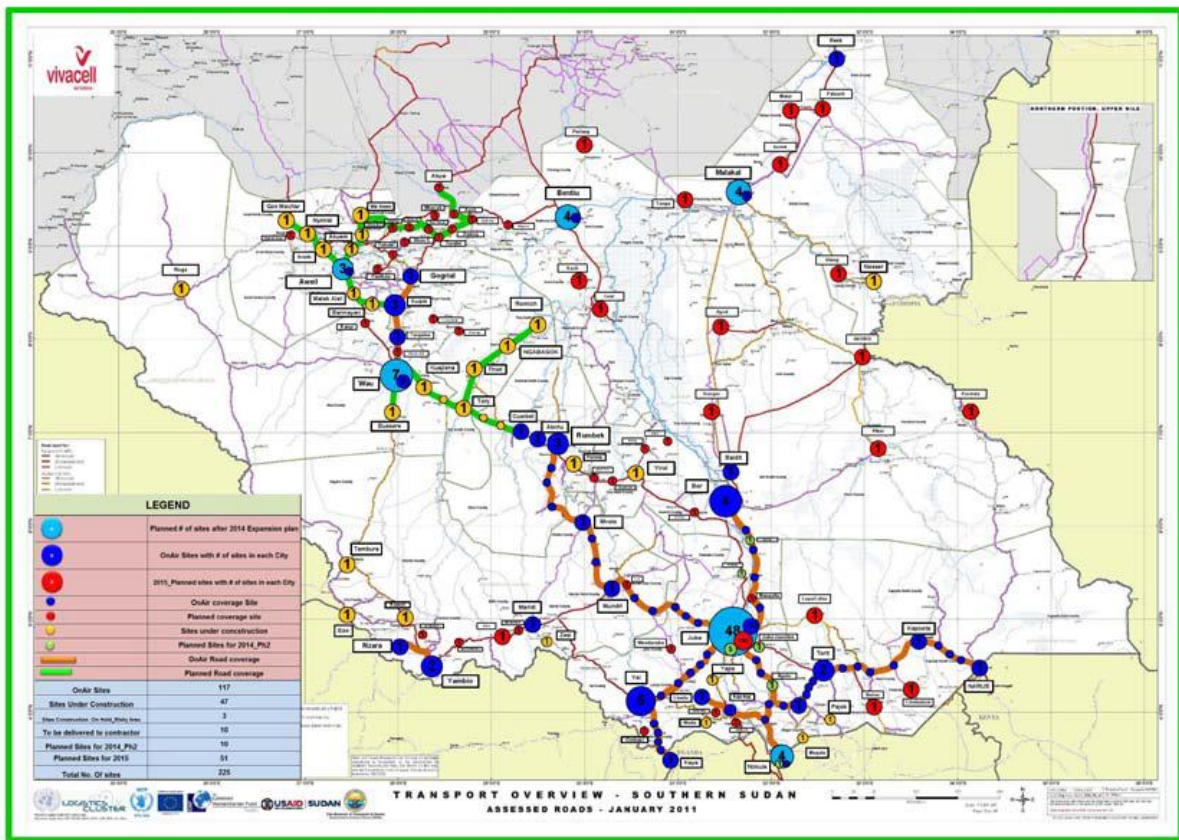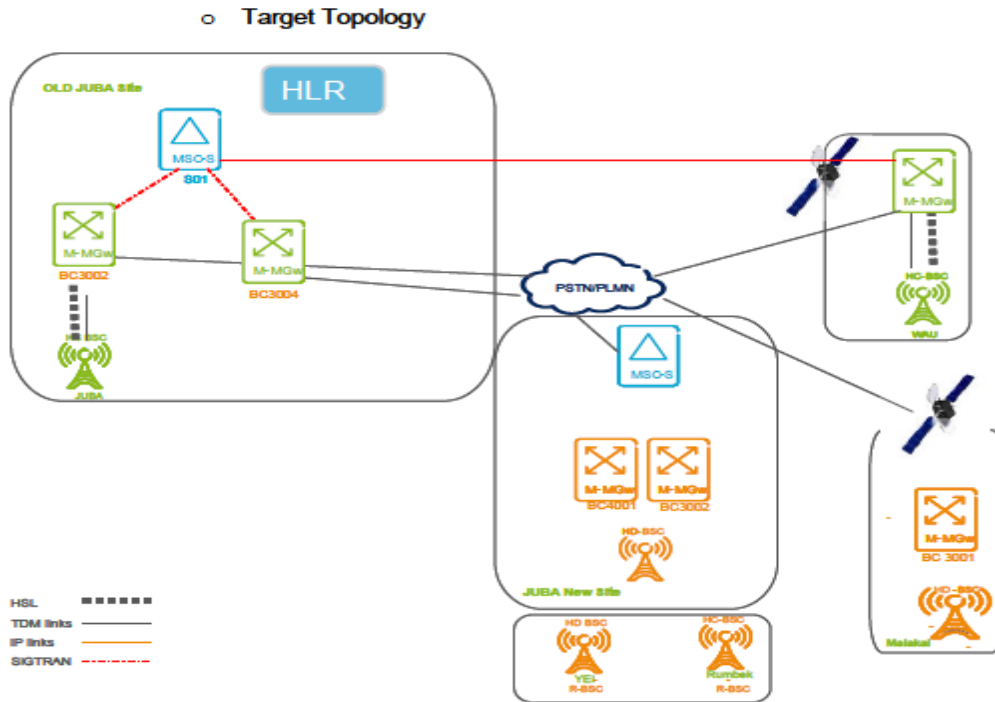

Figure (5.1) VIVACELL Network rollout in South Sudan
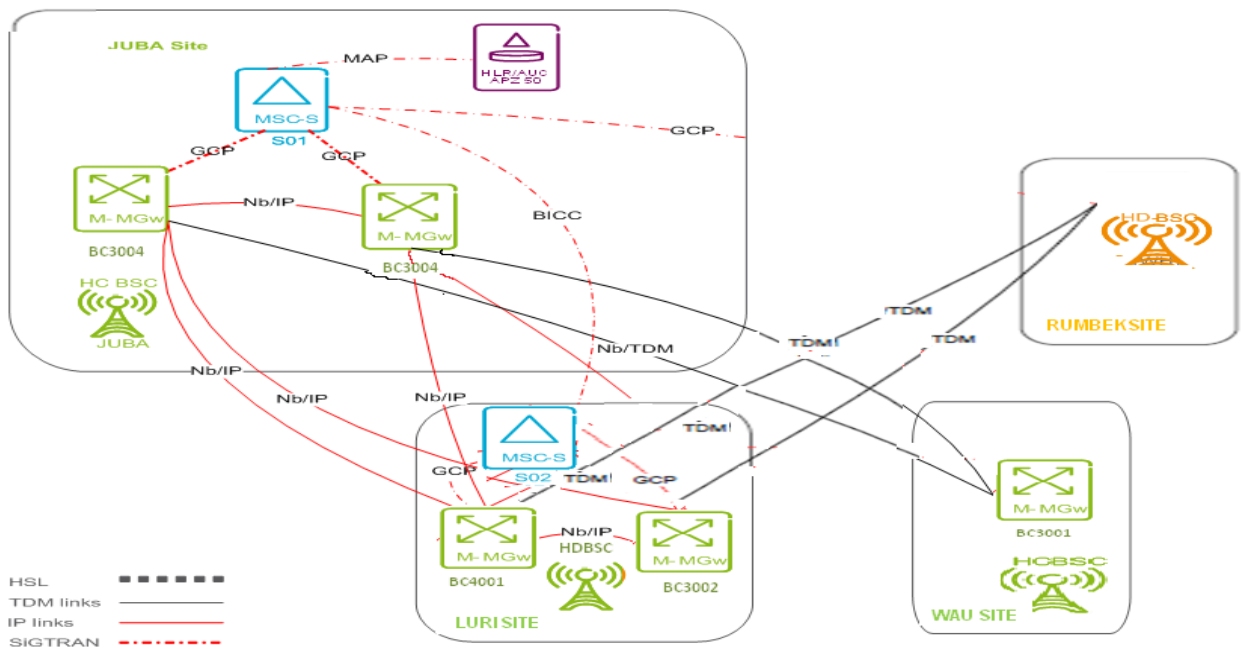
Figure (5.2) VEVACELL Early Network topology

Figure (5.3) VEVACELL Network topology Expansion

5.4 Answers from MTN South Sudan

The information obtained from MTN South Sudan supportive to the idea ,they commented on the ICT that it contribute in development and Job creation directly ,and indirectly ,ICT contributes in poverty reduction and Job creation ,among the illiterates and the poor. Adding to their comments, MTN further stated on Human Resource that, for MTN started with few staffs less than 50 right after the independent, the employment rise up to more than 130 staff. Besides the sub-contractors and dealers connected with MTN work. So it is clear that ICT industry is enabler for economic growth and Job creation, MTN additional information is that more than 55% of the total investment return goes to direct and indirect salaries. In addition of job creation, ICT brings the state of the art technologies that contribute excessively in illiteracy reduction. Other reports provisionally delighted with what MTN South Sudan reflected on their business experience which is similar to what UNCTAD that in the recent years, new micro-enterprises have emerged around ICTs in developing countries .this trend may have a non-negligible effect on economic development and poverty alleviation.

Table 5. 2 MTN South Sudan Addressing Deficit in the Country

	Addressing Deficit in the Country	Way forward
	Cholera Awareness Campaign MTN partnered with UNICEF in 2014 to launch a health awareness campaign to combat the spread of cholera in the country. The health education initiative was launched as part of MTN's 21 Days of Y'ello Care which involves employee and community volunteers.	**More effort will be exerted if peace prevails**
	•Mobile Phone Awareness MTN in South Sudan launched an information awareness campaign on the uses and benefits of mobile phones in 2014. The campaign involved employees and community volunteers and succeeded in raising interest in mobile technology and its potential to impact socio-economic conditions in the country. The MTN 21 Days of Y'ello Care campaign provides a	

successful community engagement strategy by involving employee and community volunteers to specifically target a cause such as education and leave a mark on the community. It has achieved success as a signature program for MTN across its operations	

Table 5.3 ICT Sector Initiative for addressing specific issues in the Public

	CSR Themes Issues Addressed
	Poverty: The organization carries out initiatives or sponsorships aimed at impacting poverty levels or assisting impoverished people. Youth: The organization carries out initiatives or sponsorships specifically targeting the youth segment of society in areas such as: education, skill-development, safety, reconciliation, advisory forums and consultations, the provision of training services or internships, etc… Health: The organization carries out initiatives or sponsorships aimed at improving health standards, assist those facing a health problem, or raise public awareness about a health issue. Education: The organization carries out initiatives or sponsorships aimed at improving the quality of, or access to education. Connectivity: The organization carries out initiatives or sponsorships aside from network expansion or upgrades to increase ICT connectivity among the public or targeted groups. Inclusion: The organization carries out initiatives or sponsorships to promote the economic, social or political inclusion of marginalized segments of society such as the disabled or economically impoverished. Employee Development: The organization has established programs for the purpose of developing the skills of employees. Skill Development: The organization carries out initiatives or sponsorships aimed at developing various skill sets among the general public or specific groups within the

public.

Women's Empowerment: The organization carries out initiatives or sponsorships that promote the social, economic or political empowerment of women in society.

Innovation: The organization carries out initiatives or sponsorships aside from its core business functions that promote innovation among society or specific parts of society.

Table 5.4 Contribution to Employment from the Mobile Value Chain

Operator data, interviews and Deloitte analysis on average wage rates. (Note this is employment directly Created by revenue flows from the MNOs and does not represent total employment in the sector).

Employment Impact	FTEs Excluding Multiplier	FTEs Including Multiplier
Mobile Network Op.	2,740	2,740
Fix Operator	0390	0470
NW Equipment Supplier	1,450	1,740
Handset distributors and Resellers	12,210	14,660
Other suppliers of Capital Items	0230	0280
Support Service	2,440	2,930
Airtime and Sim Card Distributor and Resellers	16,980	20380
Total FTEs	36,440	43,200

5.5 Findings from the information obtained.

The Interview with Zain South Sudan and additional report of Zain Group are diverse and comprehensive ,supportive for the purpose required by this study piece of dissertation gearing towards appropriate information on the use of information and communication technology, The electronic access through internet provides an excessive flow of statistical information for developed and developing countries and that what rendered the research scientifically positivist; the richness of historical multi-dimensional statistics of information with large experience of varied expertise in the ICT domain rendered huge advantages for the quantitative research .with reference to Zain South Sudan and the Zain group report there appears great success and dressed by some challenges ,The interviews reveal that CEOs are concern of the future and direction of their business, they are targeting high profitability that will make the shareholders convinced of the economic growth of their capitals, progress is a must, that positive attitude from one of the most senior figure is expected from other rivalries due to competition climate, on the other hand users as well are concern on the services being rendered to them and affordability of costs therein, rural population don't need to be abandoned without network reaching them so the point is inclusiveness in the convergence. Making things happen is the direction being pursue by all, in turn with reflection on the main purpose of this research what tenable policy and regulation is there to secure the use of ICT for Job creation, Poverty reduction and wealth generation a trend that will be followed.

Base on the report by Zain group and the answers presented, It is clearly apparent to deduce from that report an indication of positive impact on Job creation as more than 40,000 Positions created in Sudan as mobile penetration increase as well. Further this report which commissioned by Ericsson is an endeavor in order to describe the social economic impact that mobile communication influenced in Sudan, it also aims to give a concise overview of the key economic and social effects of mobile telephony in the country targeting foreign investments in the infrastructure .Mobile telephony has been described by Professor Jeffrey Sochs as the single most transformative technology for development indeed lessons will be deduced from this educative report which supports the argument that ICT is a tool, an enabler for economic reform and development   this also is supported by the report of Deloitte on the same.[17] .

Further, to graph information from Liquid Telecom ,Talking about infrastructure is pushing to recall major companies like Liquid Telecom one of the companies embarking on infrastructure rollout in the continent ,regional and continental fiber is a paramount important to bridge the land locked countries like South Sudan and others. Liquid company in one of the meeting at a hotel in Rwanda said they provide a very high capacity optical fiber network using state of the art technology. They have already rollout 13,000 km fiber network connects all major cities and towns in a number of African countries namely Zimbabwe, Zambia, Democratic Republic of Congo (DRC),northern South Africa .Kenya , Rwanda Uganda and Botswana ,with optimism and ambitious hope for connectivity of the Land locked Country like South Sudan why not bridge the gap by connecting Juba to Northern Uganda where Liquid Fiber is only less than 8 kilometer from the border and parallel work connecting the Southern Part of Sudan to the Northern Border of South Sudan ,what a connection ?by doing that Sudan will be also connected INLAND up to South Africa. It can be deduce that, this is one of the most strategic Fiber Link in the East and Central Africa Countries. Through to South Africa connecting the Cape Town, the benefit is that any cut in the sea cable will NOT affect the countries. This also illustrate that a move by countries mentioned will improve the networking additional rollout, the rollout itself will create more Jobs. The study deduce that indeed ICT infrastructure construction according to the recommendation of head of states to connect Africa Capital was certainly a wise decision to promote and create more working environment inside the continent **[18]**

More finding on the information from MTN South Sudan supportive to the idea ,they commented on the ICT that it contribute in development and Job creation directly ,and indirectly ICT contributes in poverty reduction and Job creation ,among the illiterates and the poor. Adding to their comments, Human Resource power for MTN started with few staff less than 50 right after the independent, the employment rise up to more than 130 staff. Besides the sub-contractors and dealers connected with MTN work. so it is clear that ICT industry is enabler for economic growth and Job creation, MTN additional information is that more than 55% of the total investment return goes to direct and indirect salaries. in addition of job creation ,ICT brings the state of the art technologies that contribute excessively in illiteracy reduction. Other reports provisionally delighted with what MTN South Sudan reflected on their business experience which is similar to that in the recent years ,new micro-enterprises have emerged around ICTs in

developing countries .this trend may have a non-negligible effect on economic development and poverty alleviation .the notion of ICT micro-enterprises refers to those impact on ICT manufacturing who helped to generate thousands or even millions of jobs, together with those small entrepreneurs selling of new products and services like the case of Software technician mentioned above ,he is doing his descent business earning him cash able to pay 20,000 SDG rent for his shop.

The findings further can grasp that The 21st century dictated a number of technological gains for everybody, exponential communication growths has been felt with ,ICTs are essential factors in promoting economic growth and wellbeing in developing nations irrespective if they are highly populated like India ,China ,Nigeria Sudan or any smaller countries . An effective policy and regulatory environment is already known as critical. For development of communication services in the developing countries as technology converges .ICT integration leads to an increase in competition that ensure a reduction in transaction cost .further it encourages foreign direct investment under such ideal regulatory environment of an independent Regulatory body ,National ICT Policy that encourages competition. That is the direction said by the Managers. A reminder of the trend the African Head of states are leading to, Connect Africa program has created a number of Jobs in those countries like Rwanda, Kenya, also Transform Africa initiative is leading into smart Africa Cities a commitment of the E-Leadership and the what they call smart Africa alliance. A ready platform to be join by those countries who are not yet members of the Smart Africa Countries which compose of 18 Countries.

The information gathered critically propose ICT projects base on the information gathered from different sources   interviewed and other related from the chapters in the dissertation of this research,   In line with the direct and indirect approaches to poverty reduction, development projects in the ICT sector can roughly be deduce according to the three categories below:

(a) Projects that focus on poverty,

(b) Projects oriented toward efficiency and growth,

(c) efficiency- and growth-oriented projects with components that focus on poverty.

The understanding of how ICT improvements either focused on poverty or on growth, contribute to poverty reduction. In general, an ICT project is expected to contribute to poverty reduction through its indirect impacts on economic growth or its direct impact on personal welfare of the poor. What exact impact the project would have on poverty reduction hinges on both the type of infrastructure or services and the areas and people the project serves. It also depends on the operating environment of the project, particularly market structures and government regulations.

Having access to ICT by both the poor in rural and urban areas makes only a modest contribution to national income growth, but it is likely to have a direct and significant impact on the daily life of the poor. On the other hand, employments in the ICT sector and use of the ICT in both rural and urban areas have a strategic significance to a national economy. They are provided with the objective to stimulate and facilitate national income growth through efficiency and improvements in productivity levels of the concerned sectors; their impacts on poverty reduction are likely to be indirect.

ICT role in various poverty sectors includes its involvement in economic interventions, in its education and health programs, and in promoting democracy and governance. ICT, as a sector, can create some employment opportunities directly to the poor both in the manufacturing of hardware and software as well as the ICT support firms. Because of the low educational levels and skills of the poor, it is expected that there are more employment opportunities in the service sector the typical successful and good example is Grameen Bank in Bangladesh, [19] the origin of Grameen Bank can be traced back to 1976 when Professor Muhamed Yunus ,head of Rural Economic program at the University of Chittagon ,launched an action research project to examine the possibility of designing a credit delivery system to provide banking services targeted at rural poor. With Commitment and determination like Professor Mohamed, ICT can be used to target specific group or even the more disadvantage ones. Indeed ICT increase efficiency, competitiveness and market access for developing country firms. This will mostly happen when local people in developing countries by pass middlemen and market their products to first world customers using e-commerce**.** A good example is the Kenyan firm Nausha Trading Company which sells local wood-carvings, pottery, and baskets directly to the first world customers. This saw a tremendous revenue growth in the company within two years of going online**.**

ICT can also play a major role in helping to monitor food security related issues (weather, droughts, crop failures, pests etc.), and to inform government on impeding food scarcities and famines. In this perspective too, information plays a key role in preventing food scarcities from turning into famines.

ICT can also play an important role in promoting health and education of the poor and prevent poverty that can originate from poor health. For example, ICT is being used on an island on the Gambia River where nurses send electronically patients symbols to be diagnosed in a nearby town by a local doctor, or abroad to get a specialist view**.**

ICTs play an important role in promoting democracy and good governance. According to the Okinawa Charter on Global Information Society "everyone, everywhere should be enabled to participate in and one should not be excluded from the benefits of the global information society. The resilience of the society depends on democratic values that foster human development such as the free flow of information and knowledge, mutual tolerance, and respect for diversity." ICT can also play an important role in supporting culture of democracy, democratic processes and civic values that uphold a democratic system. Interventions in the so called e-democracy' involve processes on electronic interaction between government and the citizens, with the aim of providing citizens with access to information and knowledge about the political process, services and available choices, and facilitate transformation of passive information access to active citizen participation by informing, representing, encouraging to vote, consulting and involving the citizens.

The quality of governance is critical to poverty reduction. Good governance facilitates pro-poor policies as well as sound macroeconomic management. It ensures the transparent use of public funds, encourages growth of the private sector, promotes effective delivery of public services, and helps to establish the rule of law.

Public sector inefficiency, corruption, and waste leave insufficient resources to support public services and anti-poverty programs as more expounded in the next section in reference to ICT access.

Lack of access to ICT is clearly not an element of poverty in the way that insufficient nutrition or healthcare, or inadequate shelter is, but ICTs are increasingly important in the effort to escape

poverty. The poor recognize this: report indicates that given the option, they are willing to spend over 2 percent of their income on telecommunications alone. This has been observed in Chile where the poor spend about the same amount on telecommunications as they do on electricity, and the average consumer spends more of his/her income on telecommunications than on electricity and water combined. This emphasizes how the poor value ICT in their everyday lives, hence the need for more attention by policy makers when it comes to poverty reduction issues.

Many people have been wondering why ICT have been assigned such importance, of late, in the development context of most developing countries. This is because ICTs are unique in having an impact beyond the individual user's welfare. ICT infrastructure offers economies of scale that stimulate network building and consequent spillover benefits. ICT enable interactive communication unhindered by distance, volume, medium, or time. They promote greater inclusion of individuals within networks and, even more important, increase the diversity of participants by overcoming the barriers of physical distance and social standing. The immediacy and reach of ICT also promote faster, more efficient, and ultimately better decision making across all fields of endeavor. ICT provide access to information that can create earnings opportunities, improve access to basic services, or increase the impact of education and health interventions. ICT also give the poor a medium through which to demand government support and reform. Recent advances in ICT can also provide people with sensory disabilities a means by which to access information and communicate efficiently with the rest of society.

From the above listed ICT outline, it can be easily observed and deduce that the underlining principle to the importance of ICT to the poor is basically access to services. So the big question when it comes to rural poverty alleviation is how could access to ICT by the poor improve their poverty status? This could be achieved through different channels, Among the several information and answers from different sources namely, Manager for sale and customer care ,Operation Mangers Andre for Zain South Sudan ,also from Algeneed for Electronics at Burg El-baraka and others ,it can be deduce that numerous internal and external factors influences the impact of ICT either Positively or Negatively ,

further Checking outside the South Sudan , the world itself is a vast continents endowed with enormous human resources, despite these endorsements there are still many countries whose information and communications infrastructure are broken down and where communications

development lags behind the developed world as such there are rooms for the African National to enhance their ICT system for the benefit of their people ,the priority envisioned like harmonization of SIM registration regime in the region shall create additional Job the same address ICT Infrastructure implementation in the region serves the purpose for booming business ,creating job in turn will reduce Poverty and at the same time generate wealth for those at risk group who found themselves employed ,as such regional collaboration in developing strategies for creation of framework for ICT infrastructure integration is an excellent decision that leads to Streamline the regional priorities drawn from country projects.

A review of literature has revealed that the use of ICTs is growing in Africa, despite many constraints. There is a considerable variation between different African countries' adoption and use of these technologies, ranging from the fairly advanced status of South Africa to the relatively undeveloped status of Somalia, which is reported to have only recently introduced its first Internet Service Provider (ISP).

The constraints to ICT development in Africa have been well documented. These constraints include lack of infrastructure, absence of ICT policy or its implementation, few trained or skilled ICT personnel, poor knowledge of ICT at all levels from suppliers to users, as well as financial constraints. These problems are discussed in more detail in later sections of this review.

Despite these constraints, there have been successful applications of ICTs in different Sectors in many African countries, including banking, air travel, software development, and the provision of health care. Further appropriate development in ICTs in Africa could improve communication, access to information, research, distance learning, teacher education, etc.

The developed world (the North) dominates the production and distribution of information; however, the flow of information from developing countries (the South) to the North has improved, albeit at a slow pace. Various ICT initiatives have been introduced in Africa to improve this situation and these could help to reduce imbalances in the sources of information. There is also a lot of useful local information within Africa that, if it were easily accessible, could be used for development.

The Sudan economic report is supportive to the research work and the interviews conducted ,it says we estimated that mobile sector created ,directly and indirectly around 43,200 first time employment (FTE) opportunities in Sudan .

the largest category of employment relates to retailers who sell airtime and sim-cards with over 20,380 FTEs Table 5.1 these includes specific as well non-specific points of sale for air time including Pharmacies, small and big groceries, kiosks and street vendors, in particular a significant number of street vendors in Khartoum sell airtime in the streets they also provide credit transfer facilities to customers who can afford only small credit units .this form of employment has been increasing significantly over the years. The important effect of the mobile services actually improves information flow, reduces travel time and cost and improves efficiency of mobile workers and job search as well.

5.6 Results of the Interview and Findings

1/ Governments are to introduce a Policy to improve Job retention and progression which is crucial for escaping and avoiding poverty across the life course.

2/ Social Policy should not focus only on poverty exit but on keeping people out of poverty to avoid successive wave of resources on many of the same individual not to return to poverty.

3/ The main thrust of the government's strategy to combat poverty is through employment as primary approach this because employment is the surest factor in triggering exit from entry to poverty.

Chapter VI

The Conclusion

6.1 The Conclusion

To conclude and get results from findings embedded in the materials and interviews conducted, the study is extracting what this piece of work is sought to have impact according to the expectation from this piece of study.

It is that important to know, Policy assume different forms, it is links to Governments as a course or principle of action adopted by the stakeholders, thus a set of Political Actions constitute a Policy, it is a trans-Boundary function governments have to consider in promoting and developing a sector, equally within the regional and international context and that Policy processing should involve Non-Governmental participants or stakeholders to ensure diverse interest embraced in order to achieve maximum consultation and censuses.

The chapter of Regulation illustrates that Governments are guided by different Socio-Political and economic trends as such ICT regulatory objectives in each Country varies, what is constant is the acceptance that ICT is now a basic right and regards as instrumental enabler to economic growth, further Regulation is an institutional Vehicle that drives Policies to ensure, fair play in the market and that Consumers are protected and national Interest catered for and equally important to promote environment sustainability.

On the point of not to exclude any body from the ICTs potential and usage It is the duty of government in partnership with the private sector, to make sure that the information society is not a society for a few, but a society for many, if development goals of any country to be achieved, putting in mind the understanding of how ICT improvements, either focuses on poverty alleviation , economic growth that contribute positively to create more employment within the Youths, women and the disadvantaged group.

Planning for more ICT project is expected from the concern African countries gearing to contribute positively for poverty reduction through its indirect impacts on economic growth or its direct impact on personal welfare of the poor. What exact impact the project would have on poverty reduction hinges on both the type of infrastructure or services and the areas and people the project serves. It also depends on the operating environment of the project, particularly market structures and government regulations that will satisfy the intended needs plan for.

Maintaining the effective policy and regulatory environment addressing expansion and wider coverage of network is critical for development of communication services and Infrastructure in the urban and rural areas a trend to be followed and implemented.

Having access to ICT by both the poor in rural and urban areas makes only a modest contribution to national income growth, but it will have strategic significance to national economy by creating more employment opportunities in the ICT sector and its use in both rural and urban areas. Equally important the ICT role in various poverty sectors includes its involvement in economic interventions, in its education and health programs, and in promoting democracy and governance.

The manufacturing industry of hardware and software in the ICT sector can create some specialized employment opportunities for the graduates, otherwise the graduates directly will be self-employed at own business in the ICT market exercising the knowledge gained to render such services to those who seeks such service.

ICT can also play an important role in promoting health and education of the poor and prevent poverty that can originate from poor health, equally vital the quality of governance is critical to poverty reduction. Good governance facilitates pro-poor policies as well as sound macroeconomic management, in addition lack of access to ICT is clearly not an element of poverty in the way that insufficient nutrition or healthcare, or inadequate shelter is, but ICTs are increasingly important in the effort to escape poverty.

ICT enable interactive communication unhindered by distance, volume, medium, or time, they promote greater inclusion of individuals within networks and, even more important, ICT access could have an impact on poverty through their involvement in economic interventions especially in the SMEs in which most of the poor are engaged

The provision of information knowledge and Internet based services are increasingly being recognized as essential elements to promote economic growth and reduce poverty in rural areas.

The conference of Plenipotentiaries of the African Telecommunications Union, meeting in its 4th Ordinary Session ,in Harare ,in Zimbabwe, on 10th July,2014,emphasized that Telecommunications/ICTs are a critical enabler of socio-economic development, and that there is

pressing need for commitment to provide the region an enabling environment to rapidly bring about a transformed knowledge –based and information African Society in order to bridge the digital divide and the necessity to achieve the full Unions membership to implement the ATU Strategic Plans 2015-2018.

Quoting from the Tunis Agenda for the information Society "We recognize that it is now time to move from principles to action, considering the work already being done in implementing the Geneva Plan of Action and identifying those areas where progress has been made, is being made, or has not taken place."

Few African countries already have comprehensive e-legislations (variously referred to as ICT Acts/Bills). A good number are presently have finished or in the process of evolving their e-legislations, among them South Africa. Uganda, Sudan, Kenya and Rwanda

Refereeing also to the African Union Plan provides for five pillars on 1/Institutional Capacity and Strategic Partnership,2/ Enabling environment 3/Innovation and Talent Development 4/ Infrastructure development 5/Content and Applications.

It can be deduce that the Impact of Communications on Developing Markets is real need to be supported by Government Policies and Regulation.

Efforts should be made to develop viable ICT Poverty Alleviation programs; these programs should be coordinated across agencies in the best spirit of networking, to ensure proper focus in resource use and synergy in development efforts.

Technological interventions should be supplemented by strong content provision. It should run parallel with a development program, thus providing mutual reinforcement between ICT utilization and impacts.

The use of poverty maps should be fully exploited through the collection of highly disaggregated census and economic data.

The educational applications of ICT should be fully supported for their economic potential.

In spite of the threats of globalization, globalization on the contrary also has great potentials for job creation and poverty reduction.

Perhaps equally important is the ability to acquire new and emerging technologies, including 'digital' or on-line technology transfer. Such was inconceivable only about a decade ago.

Besides, there is a growing global interest and focus – not only on reducing poverty and creating 'decent' employment in Africa, but also mainstreaming ICT in national and regional development programs.

Innovative methods of financing ICT and other infrastructures are on the rise. They range from venture-capital to infrastructure development trust funds. With the rekindled public-private partnerships, Africa could sooner – rather than later – be truly integrated and 'wired-up' into the global economy. A number of successful PPP arrangements have been elaborated in this report.

Healthy relations between Operators and Regulators are essential for effective performance.

7.1 The Recommendations

1/ Governments are to introduce a Policy to improve Job retention and progression which is crucial for escaping and avoiding poverty across the life course.

2/ Social Policy should not focus only on poverty exit but on keeping people out of poverty to avoid successive wave of resources on many of the same individual not to return to poverty.

3/ The main thrust of the government's strategy to combat poverty is through employment as primary approach this because employment is the surest factor in triggering exit from entry to poverty.

4/ Expansion of ICT infrastructure to the rural areas are paramount for the connectivity.

4/ Further Study on the ICT Impact and Strategies towards the Initiative of Africa SMART CITIES.

Appendixes

References:

[1] Political Science: An Introduction, Global Edition /by Michael G.

[2] Sudan, Telecommunication Act 1974

[3] Sudan, National Telecommunication Act 1994

[4] Sudan Telecommunication Act 2001

[5] H.Intven,J.Oliver&E.Seplrenda.Telecommuncation Handball Module 3

[6] Tuthill, L. (1996). Users' Rights? Telecommunications Policy 20(2):89-99.

[7] International Forum on Dispute resolution in Telecommunications (R Hill and J Watkinson

[8] International Telecommunication Union, Trends in Telecommunication Reform 2000-2001 - Interconnection Regulation

[9] Telecommunications Interconnection: A Literature Survey, Prepared for Asia Pacific Economic Cooperation (APEC) Organization," by Julian K. Wright, Eric K. Ralph and D. Mark Kennet (2000).

[10] A case study by the US Public Utilities Research Council on interconnection pricing in China (phone/phone and phone/internet) is presented by Mark A. Jamison in "The Interconnection Dispute," at the website of Hong Kong's telecom agency. It's more about dispute resolution than economics.

[11] Oftel's November 2000 report on "Consultation on future interconnection arrangements for dial-up Internet in the United Kingdom

[12] Leonard 2001 Telecommunications Infrastructure and Economic Development

[13] Weisman, D. (1994). Asymmetrical Regulation: Principle for Emerging Competition in Local Service Markets. Telecommunications Policy 18: 499-505.

[14] An introduction to Social Policy by Paul Spicker (www.spicker.uk)

[15] Poverty Report (BHPS)

[16] HDR NEPAL 2001 –Poverty Reduction and Human Development Report

[17] Zain and Delloitte Report 2009.

[18] (www.TransformAfrica .com)

[19] (www.grameenfoundation.org).

[20] Business Model for Sustainable Telecoms Growth in Developing Economies (By Sanjay Kaul,Fuaad Ali,Subramaniam Janakiram,Bengt Wattenstrom)

[21] Leonard 2001 Telecommunications Infrastructure and Economic Development

[22] Onwumechili 2001 Dream or Reality, Telecommunications Policy

[23] WWW.ITU.INT/ITU-Ddigitaldivide.

[24] www.wbcsd.org

[25] NetTel@Africa website.

[26] William H (Ed), www.lirne.net

[27] H.Intven,J.Oliver&E.Seplrenda.Telecommuncation Handball Module 3

[28] Baldwin, Scott& Hood Regulation

[29] Handbook of search on ICT Policy,EsharenanaE.Adom

[30] World Bank report unemployment of youths

[31] Robert B.Kozma Centre for technology, Role of government policy.

[32] Horwitz, Robert B. (1994). The Uneasy Relation between Political and Economic Reform in South Africa: the Case of Telecommunications. Telecommunications Policy

[33] Melody, WH (ed).1997. Telecom Reform: Principles, Policies and Regulatory Practices. Lyngby: Technical University of Denmark.

[34] Hills, J. (1991). Regulation, Politics and Telecommunications. (ed) Chamoux, JP. Deregulating regulators? Communication Policies for the 90's. Oxford: IOS press.

[35] Walden, I. & Angel, J. 2005. Telecommunications law and regulation. Oxford: Oxford Univ Press.   See chapter 15 regulatory frameworks for developing countries)...1 copy in the library.

[36] Geradin, D. 2002. Controlling market power in telecommunications: Antitrust vs. sector-specific regulation. Oxford: Oxford University Press....3 copies in the library

[37] Majone, G. Deregulation or Re-regulation: Regulatory Reform in Europe and the United States. Pinter Publishers: London.

[38] Melody, WH (ed).(1997). Telecom Reform: Principles, Policies and Regulatory Practices. Lyngby: Technical University of Denmark.(See esp. chapter 2 pp13-27).

[39] Scanlan, M. Introducing Competition into the Telecommunications Network: is Competition Law Rather than Regulation the Answer? Telecommunications Policy .

[40] Weisman, D. (1994). Asymmetrical Regulation: Principle for Emerging Competition in Local Service Markets. Telecommunications Policy.

[41] Baldwin,R, Scott,C, and Hood, C. A Reader on Regulation. Oxford: Oxford University Press.

[42] Berg, Sanford. (2002) Introduction to Fundamentals of Incentive Regulation. Mimeo, Public Utility Research Center, University of Florida, USA.

[43] Lewis, Tracy, and Chris Garmon. (2002) Fundamentals of Incentive Regulation. Mimeo, Public Utility Research Center, University of Florida, USA.

[44] Baldwin, Robert, and Martin Cave. Understanding Regulation: Theory, Strategy, and Practice. Oxford: Oxford University Press.

[45] Tetrault, M and Intven, H. (2002).Telecommunications Regulation Handbook.(Courses1-3)

[46] H. Intven, J. Oliver and E. Sepu'lveda, Telecommunications Regulation Handbook, Module 3 - Interconnection (2000)http://www.infodev.org/projects/314regulationhandbook/module3.pdf

[47] International Telecommunication Union, Trends in Telecommunication Reform 2000-2001 - Interconnection Regulation

[48] W Melody, Telecom Reform - Principles, Policies and Regulatory practice, Chapter 5-Interconnection: Cornerstone of Competition (2001)

[49] Gilardi, F. (2002). Regulation through independent agencies in Western Europe: new institutional perspectives http://www.people.unil.ch/fabrizio.gilardi/download/gilardi_oxford.pdf Accessed on 2002/01/02

[50] Hall, C, Scott, C & Hood, C. (2000). Telecommunications regulations: culture, chaos, and interdependence inside the regulatory process. London: Routledge.

[51] Preliminary recommendations on the restructuring of the legal system governing telecommunications to proper IT revolution. (2000). Available: http://www.keindanren.or.jp/englisg/policy/2000/012/summary.html Accessed on 2002/12/17

[52] Armstrong, M. The job evaluation handbook. London: Institute of Personnel and Development.

[53] Kerwin, CM. Rulemaking: how government agencies write law and make policy. Washington, DC: CQ Press.

[54] Mikal, M. (1999). Liberalized telecom market. [O]. Available: http://www.tradeport.org/ts/countries/france/mrr/mark0132.html Accessed on 2002/11/06

[55] Dye, TR. (1992). Understanding public policy. Englewood Cliffs, NJ: Prentice-Hall.

Appendix 1

Displaced Children a sign of Poverty   (Zain Report)

Appendix 2

1. Some of the research questions study areas to be interrogated by this study are:-

    i.   Do ICTs have any tangible potential to contribute towards meeting the Millennium Development Goals (MDGs) in Sudan?
    ii.   If so, to what extent, and in what particular domains and sub-domains?
    iii.   What instruments are supposed to be put in place to harness this potential?
    iv.   What gaps in policy, legislation, human capital and institutional arrangements need to be bridged to realize this goal?(Strategies)
    v.   What best-practice countries can we bench-mark from? (South Africa, Uganda and India)
    vi.   Are there any macro poverty surveys or baseline studies to leverage to aid in ICT4PVR (ICT for poverty reduction) studies?
    vii.   E-Leadership and the need to prioritize ICT4PVR / ICT4D.
    viii.   Regulation of quality of service and prices to ensue affordability and value of money.
    ix.   Universal Services and access strategy for rural and remote areas and its relationship to rollout plans of licenses Telecom companies.
    x.   Cost efficient Technologies for Universal access

Appendix 3

Interview conducted in Khartoum Sudan

This interview is practical process for earning cash in ICT Business shop with the owners of El-Gineed for Electronics at Burg El-Baraka **three hours** stay and monitoring.

Introducing my self

Salamat,I am Juma Stephen currently doing interviews for the purpose of partial fulfillment for my Master Degree at Sudan University for Science and Technology ,my Supervisor is Dr Nadir Elgaylani .the research is Policy and Regulation as an enablers for the use of Information Communication Technology (ICT) in Poverty Reduction, Job Creation and Wealth Generation .

Questions: What is your name? What is your business here?

Answers: I am Wail Al Beherye a graduate, self-employed, specifically doing software job for mobile phones of almost all types, my colleagues here also are doing specific jobs, this one here on my right and left are doing hard ware job, meanwhile this one in front of me is selling phone devices of different types.

Questions: Are you hiring this office?

Answers, Yes we are eight here doing our business, the cost of hiring the place is 20,000 SDG, this area is a center of Khartoum the rent is a little bit higher ,in other areas is cheap.

Questions: Can your work here cover the cost of hiring the place and your cost of living?

Answers: Yes, it is ok, but sometimes is not; sincerely speaking I am ok here, the business need personal relation and also good location like this here it is at the center matters for my customers.

Question? How many ICT business people are doing similar business?

Answer: they are many in thousands in Khartoum, Omdurman and Khartoum Bahri, there are many doing such business in shops at different Residential areas.

This ICT business practically has created a good Job for me and other colleagues; I am earning a decent living for my family.

Appendix 4

A practical transaction inside the shop during the three hours stay

Between me and the owners of the shop:

Me: Mr Wail my ipad needs re-activation; I cannot remember the pass word for the i-cloud which was done by MTN Company Engineer Mr Daniel who is in Juba?

Wail: Ok,if it is only activation I can do it using this computer ,this will cost you 100 SDG, just call Daniel to give the i-cloud pass word.

Me:calling Mr Daniel attempts failed.

Me: Wail I have another situation this mobile phone storage system is full**, do** you have SD memory card? Yes see my colleague Ali; please get one SD memory card,

Ali: I have only 64 GB SD card, bring one, it cost you 350 SDG, ok cost paid, I personally inserted the SD memory into the mobile device, and still the storage is full,

Wail: Ok transfer the photos, videos into the SD Card, ok; Wail started the transfer from Phone to SD memory card it took one hour to transfer.

Wail this also cost you another 100 SDG. End.

This is a practical transaction in one ICT shop which cost me as one person 450 SDG,

During my stay doing this interview and transaction, a number of customers are coming in, other buying, some with soft wire problem and being solved at the shop or are directed to a colleague shop nearby.

At the end I thanks Wail for willingly accepted the interview and be part of the randomly ICT identified business in Khartoum.

Type of ICT work and Businesses being done at this shop are:

Miner and Major repair and maintenance work of Mobile devices, whether software or Hardware also sale of Mobile Phones and its accessories.