THE GAMBIA

NATIONAL BROADBAND STRATEGY 2020-2024

COMMISSIONED BY

THE MINISTRY OF INFORMATION AND COMMUNICATION INFRASTRUCTURE

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National Broadband Strategy 2020-2024

1. ACRONYMS AND ABBREVIATIONS

2G	Second-generation
3G	Third-generation
4G	Fourth-generation
ACE	Africa Coast to Europe
BAC	Brikama Area Council
BCC	Banjul City Council
BP-2024	Broadband Policy 2020-2024
CERT	Computer Emergency Response Team
DSO	Digital Switch Over
ECOWAN	Ecowas Wide Area Network
ECOWAS	Economic Community of West African States
G2C	Government to Citizens
G2G	Government to Government
GBSP 2020-2024	Gambia Broadband Strategic Plan 2020-2024
GDP	Gross domestic product
GSC	Gambia Submarine Cable Company Ltd
GHz	Gigahertz
ICT	Information and Communications Technologies
ICT4D Policy	Information Communications Technology for Development Policy
IFMIS	Integrated Financial Management Information System
IP	Internet Protocol
ISP	Internet service provider
ITU	International Telecommunication Union
Kbps	Kilobits per second
KMC	Kanifing Municipal Council
LDC	Least Develop Country
LTE	Long Term Evolution
Mbps	Megabits per second
MHz	MegaHertz
MOBSE	Ministry of Basic and Secondary Education
MOFEA	Ministry of Finance and Economic Affairs
MOH	Ministry of Health
MOICI	Ministry of Information and Communications Infrastructure
OECD	Organization for Economic Cooperation and Development
PC	Personal computer
PPP	Public Private Partnership
Q1, Q2, Q3, Q4	Quarter 1, Quarter 2, Quarter 3 and Quarter 4
UNESCO	United Nation Educational Scientific and Cultural Organization
WiMAX	Worldwide Interoperability for Microwave Access
WB	World Bank

2. EXECUTIVE SUMMARY

2.1.   This Strategic Plan is in 18 parts all addressing specific issues of the Plan. Part 1 deals with the introduction and background to broadband and the current global practices of broadband development. The very basis of the exercise was laid out as well as the process followed in the formulation of this strategic document. There are reflections of the considerations were given to the NDP as well as the relevance and motivation of broadband for NDP. Through this the Government's ultimate objects for a broadband strategy were outlined especially in terms of the unique policy areas that inform this strategic plan.

2.2.   There is a description of The Gambia's ICT Infrastructure for broadband, service issues, the technologies in use and some interesting key related broadband statistics are provided. Based on this statistics the Plan outlines its target for broadband.

2.3.   Part 2 of the Plan is on the vision, mission and principles laid down for the Plan. As the Plan has a vision of creating a knowledge-based economy that thrives on accessible, secure and high speed broadband within an open access regime. The mission is to create and establish an economy and society that thrives on broadband impacting on lives, governance, business processes with unlimited opportunities for all citizens. This strategy is based on four considered principles to wit; promoting values to achieve NDP and ICT4D policy objectives, stakeholder partnerships, coordination, integration and sharing, the regime for open access and technology neutrality and awareness, security, education, research & development.

2.4.   Thereafter, some prerequisites for developing broadband as well as the drivers for the uptake of broadband were provided. Based on these, some gaps are identified through PEST & SWOT analysis. A list of the important findings is provided and a pointer was made for the gaps in the forms of infrastructure, connectivity, services, content, and applications that all are addressed in the Plan in order to get proper broadband service delivery. Basically, the Plan addresses broadband devices, privacy and security, capacity building and innovation as well as financing and investment. Further a number of considered opportunities are addressed.

2.5.   The Part that follows is on the outlined strategic objectives of this Plan each of which is thoroughly addressed. These are on the following;

> a) *Policy, Legislation, and Regulation;*
> b) *Infrastructure and Connectivity,*
> c) *Services, Content and Applications;*
> d) *Capacity Building and Innovations;*
> e) *Privacy and Security;*
> f) *Broadband devices; and*
> g) *Finance and Investment;*

2.6.   Furthermore, an important issue of finance and investment models in relation to the development of the right ecosystem for broadband was addressed. This is followed by the assessment of the required roles of stakeholders in the implementation as well as the path to deployment, delivery and governance management. In effect, a strategic mapping was carried out.

*2.7.   Based on the mapping, issues of risks management and mitigation strategies are considered followed by the crucial issue of funding. This is because the budget considered for this strategy is determined at an estimated total of **D65, 000,000 (Sixty-Five Million Dalasis)** excluding a few areas that need to be addressed by universal service fund activities. The sources of funding the Plan are also identified.*

*2.8.   The issues of monitoring and evaluation framework were highlighted together with the captured impacts of the strategy's implementation. With a number of Annexes, the whole Strategic Plan is premised on the **goals of**;*

a) *Creating and establishing an information society and knowledge-based economy that thrives on broadband impacting on lives, governance, business processes with unlimited opportunities for all citizens.*

b) *Building a broadband ecosystem with a robust competition, innovation and investment.*

c) *The adoption of ICTs by all stakeholders through adjustments to policies, laws and the regulatory framework.*

d) *Using ICT for good and transparent governance process.*

e) *Strengthening The Gambia's global competitiveness and private sector development.*

*2.9.   The **objectives** are to have;*

a) *An accessible, high-speed and reliable broadband networks in The Gambia that supports the broadband target of 5 Mbps for all subscribers and users.*

b) *The right and relevant policy, regulation and institutional frameworks developed in order to facilitate broadband uptake and delivery.*

c) *A realistic governance structure for the delivery of the broadband strategy including a collaborative framework on delivery with not less than 80% digital literacy within the government workforce.*

d) *Conducive environment for content creation more specifically local content, applications and digital literacy in schools to not less than 95%.*

e) *Funded innovation programs for the youth to become more creative and productive through recognised and workable business and investment models for broadband on open access principle.*

f) *Increasing access to broadband coverage to more than 90% of the population by 2024 including all local government districts in the country.*

g) *A clear and acceptable framework for the management of the national backbone and an adopted strategy for implementing the last mile connectivity.*

h) *Regulatory measures for addressing the constraints of both supply and demand side of broadband.*

*2.10. There are **expectations** for its implementation and these are as follows;*

a) *A Gambia becoming a leader and pacesetter in the ECOWAS region in mobile innovation, with the fastest and most extensive communications networks as well as having established another connectivity as alternative to GSC-ACE Cable that is to serve as a reliable back-up for the country;*

b) *Every Gambian should have affordable access to robust broadband service and the means and skills to subscribe thereto if they so choose;*

c) *Every public institution should have affordable access to at least not less than 5Mbps broadband service to anchor institutions such as schools, hospitals and government buildings and an increase in digital literacy in schools to 75%;*

d) *Broadband expanded to all local government areas and districts and to have 75% digital literacy amongst the Government workforce and 65% the total national workforce;*

e) *To ensure safety of the public at large, every alarm monitoring and security response service provider should, by 2024, have access to a nationwide, wireless, interoperable broadband public safety network.*

f) *An efficiently managed national backbone (ECOWAN) providing only wholesale services with all operators being connected on an open access basis in the provision of last mile solutions;*

g) *A successful special framework successfully delivering local content and applications generation in an effective and efficient broadband ecosystem;*

h) *A Gambia benefitting from the right capacity and innovative broadband products for development;*

i) *A Gambia with at least 75% of homes having affordable access to actual download and upload speeds of at least 5 Mbps; and by 2023, almost 100% of home should have affordable access to actual download of 5 Mbps and an increase access to broadband coverage of 4G to not less than 85% of the population by 2024;*

3. INTRODUCTION

This is The Gambia's Broadband Strategic Plan 2020-2024 with outlined action plans. Each action plan has a given associated cost. It is as a result of the measures being taken by MOICI in the development of an ICT Master Plan for The Gambia. The recognized objectives (action plans/projects) in the Strategic Plan are intended to promote the broad goals of the National Development Plan (hereinafter to be referred to as "NDP"). The Plan's objectives and defined activities are linked to the the deliverables of the NDP, to wit:

> "good governance and accountability, social cohesion, <u>and</u> national reconciliation and a revitalized and transformed economy for the wellbeing of all Gambians"

Through the ICT4D Policy and the Broadband Policy -2020-2024, the government in the NDP recognizes ICTs through broadband as a critical success factor for the achievement of the broader NDP targets. The specific measurable targets established by the government are to increase, enhance and improve government revenue, employment, infrastructure access and usage, skills development, capacity building, e-business and certitude in the field of regulation for national growth and development. These specific measurable targets are part of the elaboration in this Plan.

What is certainly clear is that the Government wants to enhance the creation of an information society that could be operating as a knowledge-based economy since the country's natural resources are rather limited. Measures to effectively create this form of society are to be expounded with clear targets. They will include collaboration and partnership between the Government and the private sector and addressing the needed adjustments in network infrastructure, capacity, cyber security, privacy and data protection etc.

One of the objectives of this strategy is to ultimately determine the broadband needs of The Gambia in order to devise a broadband and demand stimulation strategies for the facilitation of an even more effective and productive information society. This devised strategy clearly touches on all major significant issues that are symbolic of today's global broadband realisms. It is worth looking at the summary of the process that guided the formation and determination of the year strategic plan for broadband implementation.

4. BACKGROUND

There is no "reinvention of the wheel" as The Gambia too decides to come with this national Broadband Strategy. Many nations have done that as highlighted in the Broadband Policy 2020-2024. The defined objectives and strategic actions are clothed with both conventional clarity and needed flexibility for the ever-changing broadband technologies. The very basis of the strategy is first informed by the statistics and realities of the Internet in The Gambia.

4.1   The Basis of the Work

Generally, countries and states are resorting to the repositioning of their geopolitical influence and economic relevance through their adoption of ICTs. The ICTs are enabling nations with limited natural resources to yield the relevant **'soft power'**. The motivating returns found in embracing ICTs are incessantly inspiring the ITU community with the government of The Gambia inclusive to elaborate comprehensive, forward-looking and sustainable national ICT strategies to promote national development agendas.

For reasons of its benefits and related impacts MOICI formulate this national broadband Strategic Plan within the ICT Master Plan through the ICT4D Policy 2018-2028. The Strategic Plan to be devised is to guide in achieving the broad objectives of the ICT4D Policy. The success in implementing the Strategic Plan would lead to the creation of the foundation for an information society and knowledge based economy – **'soft power'**.

Based on the findings, the known attention and prioritization process for the implementation of structured ICT policy and rolling out of the networks for service delivery with the right institutional arrangement all needed right rebalancing. This is because The Gambia's pace for embracing the sweeping technology changes requires a remodelling. This is scheduled and rooted in this Broadband Strategy. A process was certainly followed after a thorough review process of the ICT4D Policy and the realities of ICTs in The Gambia in terms of the progress, the challenges and the targets.

4.2   The Process Followed in the Development this Strategy

This strategic plan is a result of extensive consultation with stakeholders including the government, government institutions, ICT sector players, civil society and the general public. The inputs from the consultations clearly exhibit the determinants of the broadband ecosystem in The Gambia. Closely aligning these elements to the premises of the ICT4D Policy guides the strategy being determined for the country for the next five years.

It was noticed that based on the responses to the questions, broadband in today's Gambia would highly impact on almost many aspects of the Governance process and private sector operations. It could become an effective enabler and enhancer of all economic sectors within the NDP

framework. To ensure that the enhancement in the growth continues the need for proper and structured coordination stands out to be critical. The basis for the formulation of this strategy is for The Gambia to create the ground for the optimal and effective utilisation of broadband in its march towards achieving a knowledge-based economy.

For the above reasons, the discussions and engagements considered the current state of broadband in The Gambia and relate that state to the earlier carved out policy objectives for broadband. The challenges are identified before the strategic objectives are outlined. There was primary data collection by the use of survey questionnaires, interview guides and focus group discussions. There was a collection of secondary data from published sources including the regulator of the ICT sector (PURA) as well as other online reports.

4.3   The Reflections of the NDP in this Broadband Strategy

This strategy is also informed by the vision behind the NDP. It is all about the creation of knowledge-based economy, the availability and access to a reliable, affordable, and secured high-speed broadband. The details of the activities for achieving the objectives would be addressed in detail in the next part of the report. The salient elements are captured in the table below:

NO	ELEMENT	DETAILS
1	Regulatory tools	PURA develop instruments and practical tools such as guidelines and regulations on broadband ecosystem addressing the various risk levels as relates to information security.
2	Investments	MOICI/MOFEA to put in place measures for the promotion of private sector investments through PPPs and JVs within the ICT sector.
3	Incentives	Government to determine and introduce tax and regulatory incentives for infrastructure investment, particularly where initial capital outlay is high.
4	Infrastructure & Access	a) The facilitation of access to the national backbone on an open access basis for all operators by the Government; b) Giving priority to broadband as key infrastructure for enabling the creation of a knowledge-based economy; c) To encourage infrastructure sharing and eliminate duplicity with increase in coverage and operational efficiency in terms of cost;
5	Digital content	Having universal access to digital content and

		services in relation to the emerging technologies and more specifically for innovation, adoption and growth.
6	Enhance Capacity	Enhancing capacity building within all stakeholders with the object of increasing digital literacy among citizens especially for the education, health, research and development.
7	Standardisation	Facilitation of the adoption of common technical standards and the development of international, regional and national backbones.
8	Partnership	Creating conducive environment for local industry device manufacture, maintenance and recycling.
9	E-Waste	Identify opportunities including e-waste management for the creation of jobs.
10	Consumer protection	Measures for consumer protection and ensuring security of networks and services in accessing broadband services.

The elements link the strategy to the NDP in terms of the targets and the purposes. These are further elaborated in the defined action plans. The answers to the questions of relevance of broadband further justify the linkage.

4.4   Relevance and Motivation of Broadband for the NDP

Linking the relevance and motivation of broadband to the NDP is determined by the current impacts of broadband on almost all different national policies of almost all ITU member states. As ICT has become a super infrastructure for all other sectors of the economy to thrive, broadband as an eco-system of services in fact represents a significant economy unit of its own. This is because broadband is beyond special type of technology and bandwidth but a unique gift of the ICT that can accelerate growth with special positive impact on all sectors of the economy including but not limited to its ability to enhance the governance process. For these reasons, it must be reemphasised that this strategy is aligned with the national development goals and the country's vision within the ECOWAS economic block. It is designed to trigger general and sustainable growth through secured network expansion and innovation.

The specific target is for broadband ecosystem that will ultimately lead to the transformation of The Gambia into an information society with unlimited ability take part in the competitive global knowledge-based economy. The strategic actions are intended to facilitate and attract direct and indirect investment with job creation being a major target. Through them broadband will become part of all the development pillars within the national development plan (NDP). Specific improvements with the adoption, application and use of Artificial Intelligence (AI), technologies relating to Internet of Things (IoT) are intended to result in having an efficient, effective and transparent governance, e-Government, universal and sustainable

healthcare system through e-health, enhanced agricultural production through e-Agriculture, e-land management framework, effective local government framework based on e-Services and e-Payments systems etc.

As the highlighted elements in the table above would reveal, the strategy is for definitely having:

a) Further stimulation of ICTs through adjusted policies, legal and regulatory frameworks;

b) Accessible, high-speed and reliable broadband networks in The Gambia;

c) Conducive environment for content creation more specifically local content;

d) Special digital literacy and awareness on the part of citizens including empowered school children;

e) Funded innovation programs for the youth to become more creative and productive;

f) Supply and demand, equity, assumptions and expected outcomes;

4.5   Government's Ultimate Objectives in the Broadband Strategy

With what is outlined in the NDP and the ICT4D Policy, the ultimate objectives of the government are to facilitate, enable and simplify connections in the creation of opportunities for smart e-solutions that have potential to transform the lives of Gambians in terms of their collective creativity in business development. Broadband is to serve as the key enabler thus by implementing this broadband strategy, the government aims at:

a) Increasing access to broadband coverage to more than 90% of the population by 2024;

b) Increase digital literacy in schools to not less than 95%;

c) Expand broadband to all local government districts in the country;

d) To have not less than 80% digital literacy amongst the workforce;

To achieve this, the unique policy areas have been identified and are used in shaping the contents and structure of the strategy.

4.6 Unique Policy Areas Informing this Strategic Plan

In the course of the review process, eight (8) outlined priority areas of the ICT4D Policy were considered to guide the outline of the strategy. They relate to the following:

a) Facilitating socio-economic growth and development of the country by deploying appropriate ICT systems and solutions;
b) Achieving good governance and transparent government through ICT;
c) Strengthening the country's global competitiveness and the promotion of private sector development;
d) Enhancing the ability of citizens to utilize ICT in their conduct of various business activities through new skills under special human capital development";

The above policy objectives inform and reflect the justifications embedded in the identified objectives/action plans drawn for the chosen strategic path. In the area of the SWOT analysis it is observed that a number of the critical success factors, best practices and conditions that also have some bearing on the context of the strategic plan. The Plan is therefore an all-inclusive framework that is to enable The Gambia leverage on new technologies for the creation of knowledge based economy.

Externally, the trends at the international level especially the standards adopted or recognized by African Union (Agenda 2063), the Sustainable Development Goals (SDGs) and the targets for the ECOWAS region were considered. As for example, recognizing the value attached by a number of the countries to service sector improvements, due consideration is given to the treatment of ICTs as a super infrastructure in relation to service delivery. The specific focus is on the need to reduce the cost of service and improve access. Further, the strategic actions also are arrayed with the supportive view that countries with a national broadband plan have fixed broadband penetration about 8.7% higher on average than countries without plans. Equally the suggestion that countries with broadband plans do benefit from fixed broadband penetration on average of 2.5% higher than countries without such plans was considered.

The development of the private sector for the realization of the full economic and social benefits of ICTs is also seen to be based on a robust partnership between government and industry through consultative and participatory engagement. With this understanding, the strategic plan is a translated statement of clear vision for the development and future evolution of broadband in The Gambia.

As the action plans also serve as pointers for the implementation of further new initiatives on the part of the key stakeholders especially PURA, these initiatives would require policy leadership for the provision of an enabling environment for private investment and proper coordination. The issues for

the coordination pertain to infrastructure, deployment costs, services, competition, investment, spectrum assignment and the adoption of policies that increase inclusive broadband availability in the form of affordability of devices and access, skills development, content development and consumer protection.

At this stage, the appreciation of The Gambia's ICT sector can also help explain the context of the strategic path herein adopted.

4.7   The Gambia's ICT Infrastructure For Broadband

With an easily manageable size for any meaningful ICT development including network deployment as well as its geopolitical positioning, The Gambia has a unique set of natural circumstances and strengths that can easily facilitate the country's march towards becoming an information society based on a knowledge economy. In terms of national fibre network and international connectivity, The Gambia has registered some remarkable progress.

The already rollout national backbone network (The ECOWAN) enables the country to have 947 Kilometers of fiber rings all around the country. The Gambia is benefitting from the national fiber backbone's connectivity to the ACE Submarine cable (an international backbone connectivity in operation since 2012) with a capacity of more than 100 Gigabits. This connectivity success is as a result of the country's first 10-year ICT Policy (National Information and Communication Infrastructure NICI-I) Policy that ended in 2015. The ECOWAN that was completed in 2013 has a complete loop around The Gambia on both sides of the river with various loops at strategic points that are to serve as redundancies with self-healing effect in the event of any fiber cut. The diagram below represents the entire ECOWAN network.

---- *South bank fiber*
-------- *North bank fiber network*

There are mainly four licensed GSM operators, a fixed line operator (Gamtel) and a few ISPs. Based on the aftermaths of liberalisation measures there is an existing PPP arrangements in the form of the GSC that has since been serving as a special purpose vehicle for international connectivity. The details (including key statistics) of the network and service providers are provided in an annex to this strategic plan. An important matter of concern that is addressed by the Strategic Plan is the fact that The Gambia is

directly connected to only one international undersea fiber cable (the ACE Cable) and there is the issue of a limited backup in the event of a network breakdown. The Trans-Gambia cable (Sonatel-Gamtel fiber cable link) has limitations in the form of operational arrangements. Further, there are gaps in the form of 'digital divide' in the access to Internet services in the country. There are gaps between voice service delivery, Internet and data service. The biggest of the difference is the number of Internet users as against the number of those users that are broadband.

4.8   The Gambia's Network Infrastructure & Service Issues

The national backbone (ECOWAN network) has some gaps in that there are some major settlements where the ECOWAN network is not laid down and these are on both the north and south banks of the country. This plan considered measures for their linkage and connectivity to ECOWAN. The consideration is in the form of high capacity broadband radio links for providing access to those areas. The technology (additional fiber or radio links) to use in extending the coverage of ECOWAN to those major areas and the determination of cost are seen as policy and regulatory issues which could be partly determined by the plan. Defined actions are considered with potential impacts on the management and operations of ECOWAN network as the national backbone?

There are some challenging issues relating to network technology, the available capacity, the level of utilisation, the rings and the coverage gaps (network length and coverage). This is necessitating calls for further investments. For these reasons too, the Plan outlines measures for the proper and effective management of the ECOWAN backbone infrastructure. On the matter of international bandwidth capacity some measures are defined for the optimal utilisation of the capacity provided by ACE (a design capacity 12.8Tbps, a lit capacity of 1.6Tbps and a 100G technology proof since 2016).

4.9   The Broadband Technologies in Use in The Gambia

The strategy considers the technologies in use and adopted measures for those that are cost effective, reliable and supportive to the broad ICT4D Policy goals. The available technologies whose deployment methods vary relate to fixed broadband, wireless broadband, satellite, 4G/LTE and 5G.

4.10 Key related broadband statistics in The Gambia

With no specific drawn Broadband Policy, the existence of a few but salient policy statements in the ICT4D Policy in relation to broadband have thoroughly been captured by this Plan. The identified measures would add to the endeavours for exhaustively addressing the issues of access, use of and benefit from broadband services, security and factors that determine both the supply and demand sides of broadband. In effect, these factors, as in the form of statistics, all partly influence the determination of the strategic actions.

Clearly by 2008 and based on a survey, about 66.2% of institutions on the average owned / accessed more than one computer whilst 12.0% owned only one PC. There is only one (1) fixed line operator in the country, four (4) GSM mobile operators and five (5) ISPs operating. The mobile broadband subscription per 100 inhabitants was 0.24 in 2009. By 2012 there was a fixed (wired) broadband subscription per 100 inhabitants at 0.03 and the estimated Internet users per 100 inhabitants was 12.45. The fixed line subscription of 64,196 as in 2012 dropped to 50,334 in 2013 and to 47,540 in 2014. This is still on a decreasing trend.

There was mobile subscription of 2,159,099 and a fixed Internet subscription of 3,200 by 2014. The mobile Internet subscription increased from 127,809 in 2012 to 308,393 in 2014. By 2017, the population coverage for 2G & 3G Mobile Services is about 96% with over 2.5 million connections. With a market penetration of 120% higher than the African Average of 72% there was an annual growth rate of 22%. By 2019, the number of Internet subscribers in terms of broadband now stands at 5000. The subscribers for 3G and 4G are about 1 Million. There are 42 subscribers per 100 inhabitants representing 42% of the population.

Much has been accomplished in terms of falling prices for international connectivity, especially over the period 2012 to 2019. The trend in the increase of the activated STM1 capacity from 6 to 62 when The Gambia got connected to ACE in 2012, it has now increased to 217 STM1s even though the total available capacity stands at 660 including the un-activated one. The over 300% increase in activated capacity is reflected by a sharp reduction of the tariff. By making a simple baseline comparison, the cost of one (1) Meg residential connection before the launching of ACE was about D5000 (five thousand Dalasis) and now is it between the ranges of D2300 to D2500. This represents a 50% reduction.

4.11 Broadband Definition and vision for The Gambia

As highlighted in the first part of the report (on policy review), that there is no agreed and universally adopted definition for broadband. The ITU, at the early stage, refers to broadband as a minimum speed of 256 kb/s for its statistical collection though it is unknown how strenuously this is enforced. The OECD has defined broadband as not being dial-up and this implies that the speed is not considered as critical but rather the fact that the connection is "always-on." Even for this assumption is debatable because the speed of a broadband connection has been found to have differing economic impacts.

Therefore with no clear adopted definition of broadband and its capacity target within the ICT4D Policy and based on both the policy objectives and benchmarking, the inclination as consideration for broadband is as;

> "Connectivity that is always-on and that delivers a minimum of 5Mbps to every user, homes and businesses in The Gambia for high-speed access to voice, data, video and applications and through interactive network with secure, quality and affordable services within the next 5 years"

This is partly because of the 2025 broadband targets set by the ITU Broadband commission. Since the remainder of the duration for that almost elapses with the five year plan's duration of The Gambia (2020-2024) some of the inherent targets of the ITU Broadband Commission are adopted. With the commitment for all countries to have a funded national broadband strategy or plan by 2025, the universal access and services definition approaches have also been adopted. The issues for these are culled from the statements of the ITU Broadband commission as under:

a) "Affordable entry-level broadband services in developing countries, at less than 2% of monthly gross national income per capita;

b) The broadband-Internet user penetration should reach 75% worldwide, 65% in developing countries and 35% in least developed countries;

c) That 60% of youth and adults should have achieved at least a minimum level of proficiency in sustainable digital skills;

d) That 40% of the world's population should be using digital financial services;

e) That un-connectedness of Micro-, Small- and medium-sized enterprises should be reduced by 50%, by sector;

f) That gender equality should be achieved across all targets".

As the fundament goal is to get government and businesses online with improve connectedness of micro-, small- and medium-sized enterprises by 50%, by sector the existing statistical data (as in the first part of the report) of the ITU all serve as pointers in our determination of the strategic goals.

With the above serving as target guide, the vision, mission and principles for this Strategic Plan are carved out.

5. VISION, MISSION AND PRINCIPLES

In consideration of the overall vision of the ICT4D Policy, a vision and mission for the strategy with some guiding principles for broadband development and implementation are identified. In addition to the consideration of both the NDP and early NICI policy, the vision and mission both reflect the four strategic development areas of vision 2020, to wit: accelerating private sector development, restructuring economic management, developing the human capital base and institutionalizing decentralized and democratic participatory government structures [SEP]processes and systems.

5.1   Vision

Drawing from The Gambia's NICI-1 Policy Statement which has a vision "to leverage the benefits of ICTs for a people-centred, free market based and export-oriented socio- economic development strategy built on principles of public-private partnership for wealth creation" the following broadband strategy clothed with the primary objective of the creation of a knowledge based economy in The Gambia is proposed. It reads as under;

> *"A knowledge-based economy that thrives on accessible, secure and high speed broadband within an open access regime"*

5.2   Mission

Within the same NICI-1 Policy Statement the mission statement was " to achieve higher growth rates in all spheres of socio-economic activities using ICTs as a platform to exchange data, information, knowledge and a tool to implement applications and provide services in order to 'leapfrog' Several stages of development through a participatory approach in building human resources and a conducive environment". In terms of broadband, the need to 'rely on broadband' for that anticipated growth and sustainability is shaped out. Therefore the mission in supporting the vision through this strategy is

> *'Creating and establishing an economy and society that thrives on broadband impacting on lives, governance, business processes with unlimited opportunities for all citizens'*

There are principles developed on the basis that all visions and missions can only be successfully pursued through guiding principles.

5.3   Principles

This strategy is based on four considered principles and some of the proposed activities are reflection of support to these principles, to wit;

5.3.1 Promoting values to Achieve NDP and ICT4D Policy Objectives

This strategy resonances and requires each stakeholder player in the Gambia's broadband ecosystem to uphold the values enshrined in the ICT4D Policy and the NDP. The basis of its implementation is premised on equity, cohesion and social inclusion for all citizens and peoples to benefit from broadband.

5.3.2 Stakeholder Partnerships, Coordination, Integration And Sharing

The need for a balance stakeholder partnerships in the form of PPPs, the coordination of activities and the integration of business processes and infrastructure sharing all fall within the ambit of a thriving broadband ecosystem. The sharing of ideas, experiences, insights and resources can all facilitate the realization of this strategy. This becomes significant in addressing the challenges of cyber security, management of scarce resources and in the delivery of the programs under the ICT4D Policy.

5.3.3 The Regime for Open Access and Technology Neutrality

With the right enabling legal, policy and regulatory framework as well as repositioned institutions for purposes of broadband, both the supply and demand sides of broadband can be wholly protected. Creating equilibrium of these two sides can help in achieving the objectives of this strategy.

5.3.4 Awareness, Security, Education, Research & Development

As The Gambia keeps plunging into a knowledge-based economy, there is an increase in both data and online presence impacting on our patterns of value orientation. As broadband is becoming a daily necessity there is now the need to improve on the technical and user capacity, education, awareness creation, research and innovation for its sustenance. This strategy recognises all these within this principle.

However, for the laid down principles to be adhered to without any deliberate policy departure, a consideration of the drivers, as in the Broadband Policy 2020-2024 and in this Plan, for the uptake of broadband is paramount.

6. PREREQUISITES FOR DEVELOPING BROADBAND

By assessing the environment in The Gambia, the following assumptions for the successful development of broadband and the realization of its potential are considered:

a) The right and relevant policy, regulation and institutional frameworks are developed by the government in order to facilitate broadband uptake and delivery;

b) A realistic governance structure for the delivery of the broadband strategy with the right leadership guided by the principles of accountability together with sound monitoring and evaluation (M&E) framework;

c) With a dominant role for the government, this strategy's implementation is public-private-sector driven;

d) Each specific stakeholder has a role to play in the implementation

The above could be addressed first at the level of the policy as suggested in the first part of the report on specific issues of policy line management responsibility (PLMR) and the policy on the capacity of policy's custodian. The diagram below (with main questions and references) is to guide in the further determination of the prerequisites.

NO	QUESTION	TARGETS
1	WHAT	Target to deliver 5 Mbps through proper cyber security framework
2	HOW	Policy and regulation with infrastructure, incentives, spectrum, proper PPPs, financing, capacity building and awareness campaign
3	WHERE	The whole country including government, businesses, institutions and the population
4	WHO	Citizens, government, institutions and citizens
5	WHEN	Five years from 2020-2024
6	WHY	Creating a knowledge-based economy that thrives on accessible, secure and high speed broadband within an open access regime

7. DRIVERS FOR THE UPTAKE OF BROADBAND

In developing any strategy, it is important to consider the key drivers for the subject of the strategy. All strategies for broadband address the two key issues and these are:

   a) The uptake of broadband;
   b) The adoption of broadband;

These two issues are important because the demand and supply sides of broadband must be responsive to the market dynamics. The defined strategic actions reinforce our recognition of the two issues. Therefore the elements within this dynamics relate to the following;

   i.   Relevant content
   ii.   Connectivity at affordable prices,
   iii.   Quality of service
   iv.   Adequate capacity
   v.   Education and awareness
   vi.   Network security and privacy
   vii.   Liability for network default
   viii. Data-asset
   ix.   Business continuity

A careful consideration of the issues on the supply side of broadband speaks to The Gambia's need for the following:

   i.   Legal, policy and the regulatory regimes to adequately and effectively promotes competition, unique elasticity and cooperation;

   ii.   The government and PURA are expected to promote investment by providing incentives such as tax breaks, promoting cooperative business models through licensing and adopting best practices in the regulation of broadband;

   iii. The licensed operators as service providers are expected to contribute by adopting progressive business models such as infrastructure sharing to address bottlenecks like digital divide;

   iv.   Direct government support on issues affecting broadband including investment income, population density, education and service levels.

Each of the above parameters as uptake and adoption factors are considered and reflected in the plan. The two factors also have major determinant factors in the form of the basic prerequisites for developing a country's broadband.

8. IDENTIFYING THE GAPS THROUGH PEST & SWOT ANALYSIS

The conducted stakeholder mapping helps in analysing the status and interest of each stakeholders for broadband. There would still be a need to encourage and continue with the participation of stakeholders using various forums such as meetings and planned discussions, assessment of some already executed exercises, workshops and thereafter started consolidating our findings. These findings will inform the situational analysis, and the strategic framework for the ICT Master Plan.

Further, situational analysis was carried out in order to conduct a critical profound evaluation of the current ICTs and broadband situation by appraising its total ecosystem surrounding the deployment and utilization of ICT infrastructure, systems and services in the country, in terms of external and internal environments. The internal environment focused on the country's internal ICT resources such as the infrastructure, human resource, policies and governance structures, while the external appraisal identified conditions and opportunities that may have impact on the country's ICT appropriation capacity and capability particularly international connectivity and its determinant factors.

8.1   Important findings

With this Strategic Plan and the consideration of The Gambia's connectivity to the ACE cable system through the GSC and the rolling out of the ECOWAN network through key investments and grants for increasing broadband access, the PEST and SWOT assessment reveal some gaps that need to be addressed. These are in the table below.

NO	SUBJECT	REMARK
1	Definition and scope	There is the need to have a clear and acceptable definition for broadband for The Gambia.
2	Investment	The business and investment models of the GSC operators need to promote open access principle.
3	National backbone management	The management framework of the national backbone under Gamtel needs improvements.
4	Last mile	The last mile connectivity is still a major challenge;
5	Broadband charges	Comparatively and having regards to the GSC capacity of the ACE cable the broadband charges are still high in The Gambia.
6	Relevant Content	There is that serious lack of relevant digital content and applications.
7	Limited geographical coverage	Broadband is yet to geographically reach a greater part of the country.

8	Shortage of demand side skills	There is shortage of demand-side skills for enabling broadband services to be effectively used.
9	Limited supporting Infrastructure	The supporting infrastructure in the forms of access roads, power supply and disparity in requirements by local government authorities e.g. BCC, KMC, BAC, with numerous fees discourage broadband rollout.
10	Collaboration	The lack of credible and sustainable collaboration across the industry chain on broadband delivery.
11	Limitations of devices	There are issues of specific limitations related to broadband devices.
12	Limited innovation	Very limited innovation in broadband services in the country;
13	Governance and delivery	There is little context for broadband vision as well as limited governance and delivery framework for The Gambia;

Based on the table above, the summary of the general findings includes:

a) Lack of synchronization of operations by government entities and authorities handling infrastructure rollout;
b) No specific broadband policy indicating inadequate focus on practical broadband deployment;
c) Expensive ICT services and duplication of infrastructure;
d) The current policy, legal and regulatory frameworks need to more exhaustively address the issues of access, the use and benefit from broadband, ICT services and security of broadband from both the perspectives of supply and demand;
e) Sector guidelines not embedded in regulations such as infrastructure sharing and open access rules;
f) Lack of technology ready devices for broadband services;
g) Persons with disabilities not currently and specifically included in broadband;
h) E-waste regulations not yet enacted;
i) The institutional framework for the delivery of broadband needs enhancement with a view to strengthening it.;
j) Having a special legislation for broadband infrastructure would improve the treatment of broadband as critical infrastructure

8.2 Interesting Gaps that need to be addressed

As the findings reveal challenges, there are some concerning noticeable gaps that are partly addressed for the purposes of this strategic plan.

8.2.1 Infrastructure and Connectivity

The gaps in the network infrastructure and connectivity centre on general service quality including broadband. With some low speed connections and poor network reliability on the part of some network service providers some areas in the rural areas still need coverage or stronger and effective coverage. The 5000 subscribers is low and the 1 million subscribers of 3G and 4G are not very encouraging especially in relation to the 5 Mbps target. Rather surprising that there is a network service provider without the basic 3G technology (Comium). The ECOWAN fiber that fairly covers the whole country (with the exception of some few but significant areas) also has some significant last mile limitations.

A number of the operators are having constraints in using the ECOWAN backbone for reasons of service quality and cost. This has prompted an ISP service provider (Netpage) to roll out its own fiber network only to be stopped via a letter from MOICI. This is typically constraining investment in broadband and reducing ability of consumers to afford broadband. Some users of fixed connectivity via fiber are now leaving their provider (Gamtel) for wireless connectivity service provider (Netpage), a real demonstration of poor service delivery and the need for an efficient sharing arrangement of critical infrastructure. There is certainly low access to and uptake of broadband services and the framework for spectrum Licensing is still reflective of the pre-broadband era spectrum licensing.

8.2.2 Services, Content, and Applications

As an approach, broadband services are seen as professional facilities devised for technology application by businesses and end users. The effect is for the provision and utilisation of particular technology-oriented solutions by combining the processes and functions of software, hardware, networks, communications and electronics. In order words broadband service can be defined as an action by which a need or content is supplied with the use of technology. In the broader outlay, this strategy is designed to motivate how (in terms of the process) services and content are offered other than what is being offered.

Some of the considered services under broadband for the purposes of this strategy include:

NO	SERVICE TYPE
1	Voice
2	Data
3	messaging
4	Government services
5	Mobile money
6	Value Added Services (VAS) -news, heath, farming, education
7	Cloud services
8	Co-location
9	Over-The-Top (OTT) services (Facebook, WhatsApp, Skype, twitter etc.,)
10	Video conferencing
11	Internet of Things (IoTs)

The status of each of these services, the very contents and applications is not as developed as compared to other smaller nations with similar geographic characteristics as for example Mauritius. There are very limited activities on mobile money, government services, cloud services, video conferencing and the internet of things simply because of the constraints. The important aspect is that this strategy advocates for the creation of an effective regulatory framework to balance the interest of existing providers. This would include the facilitation of competition by al players and enhancing innovation, consumer choice, quality of service with solid guarantee for the security of users. Above all, affordability shall be taken as key for the regulatory consideration.

8.2.3 Service delivery

The common concern expressed by all consulted stakeholders revealed that services are expensive and yet poor in quality. There is very limited or rather poor local content. At the main government registry under the Ministry of Finance and Economic Affairs (MOFEA) there are challenges in the attempts to digitize core government registries including the further development and expansion of the scope of the government management information systems. There is virtually no target set for local digital content especially even for local languages on online content. With that apparent lack of relevant digital content and applications the broadband uptake is being affected.

8.2.4 Broadband Devices

To have broadband means accessing the Internet through a device portable or otherwise. This may be smartphones, personal computers and tablets. In some case it can even be customized devices such as police terminals, and other smart connected devices such as Internet Protocol Televisions (IPTVs), wearable's and other IoTs. The biggest determinant to the acquisition of these devices is cost and the total cost of ownership. The inherent issueswill

pertain to usual repair works, maintenance, power supply and useful life. For anyone to access even a govern service or network it must be through these smart devices.

With a rather low fixed and mobile broadband penetration rate, The Gambia still has significant progress to make with respect to broadband uptake. There ought to be other measures for the device prices to become lower. At the moment the low-end devices are in fact not of the proper quality to serve the purpose. The strategic actions considered these device challenges. There is a concern that low prices devices are usually of low quality and life span. This leads to a lot of electronic waste that requires some serious attention.

8.2.5 Privacy and Security

There is certainly a need for further measures for the security of the broadband networks and the need for the privacy of the consumers to be protected. As privacy and security are imperative drivers of demand for broadband and online services, the expectation is to have the right legal and regulatory framework for the protection of network security and data. There is currently no comprehensive data protection legislation in The Gambia.

In effect information security and privacy especially online transactions are important for broadband uptake. The strategic action on the need for the promotion of a legislation for information security, data protection and the protection of privacy of citizens and ensure the interface between technology and rights to privacy are well regulated. The current framework for fighting against cybercrime and cyber security breaches need improvement. The potential for fraud in or against networks, banks and identity theft are high.

8.2.6 Capacity Building and Innovation

The summary of the gaps identified in capacity and innovation relate to awareness of broadband services, the misplaced curriculum in educational institutions in relation to broadband, the need to adjust the art of institutional collaboration for broadband and the unbalanced access to technology. There is certainly paucity of the relevant skills and insufficient relevant local content. Lastly, training and funding are hard to come by. It is for these reasons that a number of strategic activities out outlined to address the challenge.

8.2.7 Financing and Investment

The ICT4D Policy is not a broadband policy but contains statements relating to broadband. Within the policy statements there is no defined model for the financing of broadband or the enhancement of investment in broadband in The Gambia. There is no planned coordination framework for financing broadband initiatives. Almost all ministries and government institutions visited did not show any adequate delivery structure for coordination and implementation of broadband and yet each seems to be having its own broadband project for implementation. As the government's budget allocation for ICT is low (the exact percentage to be provided) there is no

such specific common accepted awareness on how ICT services can be supported

9. CONSIDERED OPPORTUNITIES AND RELATED PROJECTS

With the summary of the gaps identified and tabulated it important to note that each represents an opportunity for improvements in broadband for The Gambia. There are opportunities addressed hereunder.

9.1 Improvements in Capacity for Broadband

The opportunities for promoting capacity and innovations in the broadband arena will include the leveraging on existing infrastructure to deliver broadband, engaging in building the skill of the current workforce, training on the relevant technologies, carving out a robust partnership arrangement with the private sector and having a clear and comprehensive stakeholder engagement plan. The identification of strategies for the creation of local content and the development a responsive and serving curriculum for ICT provide greater opportunities for the population.

9.2 Infrastructure and Connectivity

The first opportunity under infrastructure and connectivity here is to have a broadband infrastructure roll out plan by taking on board the current infrastructure. The roll out plan will be premised on measures for increasing broadband connections, motivating demand for broadband services and entrepreneurships with targeted investment incentives in broadband services for improved connections and speeds. The opportunities for designing a number of collaborative initiatives pertaining to broadband infrastructure development are enormous. PURA would have the opportunity to revisit standards for the management of spectrum and the review of the licensing framework (changing to a converged licensing framework) to take care of broadband and emerging services.

9.3 Broadband Services

The obtainable opportunities pertaining to services, content and applicators comprise reorganising the measures for content development through incentives and the aligning of content and applications with the needs of the ICT sector and economy.

9.4 Privacy and Security

The biggest opportunity within privacy and security gap is to come up with a comprehensive legislation that would be forward looking for broadband network and service security and privacy. The infrastructure could be declared utility clothed with clear punitive measures and the law could recognize frameworks for validating network systems and users.

9.5 Financing

There are opportunities that can be explored for further financing from either World Bank or the Africa Development Bank (AfDB). In the deployment of the ECOWAN the AfDB was partly engaged and WB was involved in making sure that The Gambia gets the right connectivity to ACE submarine cable. Legislative approaches could also be considered.

10. OUTLINED STRATEGIC OBJECTIVES OF THIS STRATEGY

The strategy therefore reiterates the focus of ICT4D and the NDP. It is informed by the identified gaps with specifies actions to remedy the challenges. It is looking at both the supply and demand side of broadband for a sustainable stimulation of the development of broadband. The key subject areas of the strategy relate to the alignment of the ICT4D Policy to reflect issues of broadband and leverage on regional and international best practices for collaboration on broadband. To ensure this is done, the strategic actions would ensure the alignment of the existing legislations for broadband especially in addressing cyber security being an important demand side issue in broadband.

10.1 Broad Strategic Objectives

Below is the set of the considered strategic objectives for this Strategic Plan:

h) Policy, Legislation, and Regulation;
i) Infrastructure and Connectivity,
j) Services, Content and Applications;
k) Capacity Building and Innovations;
l) Privacy and Security;
m) Broadband devices; and
n) Finance and Investment;

As the priority areas for the broadband policy also cover capacity building, private sector development, gender equality and youth empowerment, agricultural development and climate change, the other expansive objectives for the purposes of this Plan relate to the facilitation of socio-economic growth and development with the deployment of appropriate ICT systems and solutions. There are the overall targets pointing to the following;

a) Good governance and transparent government through ICT;

b) A broadband ecosystem with a robust competition, innovation and investment;

c) Strengthening The Gambia's global competitiveness and private sector development;

d) More adoption of ICTs by citizens;

10.2 The Details of the Strategic Objectives

With the specific understanding of the gaps and opportunities, the strategic objectives are summarised as follows;

10.2.1   Treating Broadband as Critical Infrastructure

The objectives include;

a) Achieving awareness on the importance and use of broadband in relation to its demand and uptake

b) To reduce infrastructure duplication and increase coverage for a harmonize development;

c) Enhanced connectivity for all stakeholders

d) Safeguarding open access principle for infrastructure and its utilisation;

e) Improving technologies including 3G, 4G and 5G for wireless deployments and connections;

f) Having a market responsive spectrum allocation and pricing;

g) Implementing policies that promote the sharing of passive infrastructure and spectrum resources;

10.2.2   Broadband Services

Consistent with the identified gaps and available opportunities, the following strategic objectives will be pursued to improve the status of The Gambia's broadband with regard to services, content, and applications:

a) Having digital ecosystem that supports adoption of e-applications;

b) Securing research and innovation in the field of gainful contents and applications development;

c) A robust competitive framework;

d) Encouraging universal access to digital content and services for e-learning and schools connectivity;

e) Promote digital literacy programs and e-government services in the delivery of public service;

f) Offer targeted incentives for broadband;

g) Promotion of emerging technologies for quality, affordable, accessible and relevant broadband services;

h) Protected consumer interest and secured broadband services;

10.2.3   Broadband Devices

The following are the objectives for the broadband devices:

a) To promote access to a broadband by the public sector and the citizens for access to e-government services;

b) Having a developed framework for security of IoTs devices based on best practices;

c) To increase demand for devices;

d) Proper management of e-waste issues;

e) Ensure standards easy for device utilisation;

10.2.4   Privacy and Security

In sum, and in working on this strategy, the strategic objectives with regards to privacy and security relate to the ratification of some international conventions on cyber security (Budapest Convention on Cybercrimes) consideration of a new cyber-specific legislation, having special policy instruments to address the various risk levels as relates to particular information security scenarios and the formulation of cooperation arrangements with some organisations of interest in cyber security. These details are reflected in the planned actions.

10.2.5   Capacity Building and Innovation

The digital future may look bright, but it is far from guaranteed without effective capacity building initiatives and awareness campaigns in ICT. For this reason a number of the capacity building measures have been identified in the objectives. This strategy explores the ways in which public and private actors can seek to improve awareness and build capacity on broadband access among the citizenry with the ultimate objective of having an equitable access to broadband for all in order to impart the knowledge, skills and experience needed to fully exercise and exploit the digital opportunities available online.

10.3 The Strategic Actions

Some salient strategic actions are developed. These actions are to address the gaps identified in the Broadband Policy 2020-2024. They relate to infrastructure and connectivity, service delivery, content and applications, devices, privacy and security, capacity building and innovation and matters of funding the strategic plan.

With the country's national backbone (ECOWAN) and its international connectivity via the GSC of the ACE Consortium, the measures outlined in the broadband policy contain explicit metrics as follows:

a) All stakeholders to clearly pursue the broadband target of 5 Mbps;

b) Recognised and workable business and investment models for broadband on open access principle;

c) A clear and acceptable framework for the management of the national backbone;

d) An adopted strategy for implementing the last mile connectivity;

e) Regulatory measures for addressing the constraints of both supply and demand side of broadband;

f) Measures for relevant digital content and applications;

g) A clearer framework for the supporting infrastructure in the forms of access roads, power supply and disparity in requirements by local government authorities e.g. BCC, KMC, BAC, with numerous fees discourage broadband rollout;

h) A collaborative framework on broadband delivery;

10.3.1   The Broad Indicators for Tracking the Objectives

The Broadband Policy 2020-2024 laid down some broad targets that are to serve as the barometer in the course of the policy's validity period for tracking the objectives very closely. This Plan considers them through some specific strategic activities. The broad targets culled from the policy are:

a) *By January 2021 the national backbone (ECOWAN) shall be placed on efficient management terms where the manager-operator shall only be providing only wholesale services;*

b) *By June 2021, all operators to be connected to the ECOWAN on an open access basis in the provision of last mile solutions;*

c) *By the end of 2021, The Gambia should have another connectivity as alternative to GSC-ACE Cable that is to serve as a reliable back-up for the country;*

d) *By January 2021, there shall be special framework for local content and applications development as well as special regulations for broadband devices;*

e) *By January 2021, the capacity building and innovation agenda shall be developed for implementation;*

f) By 2022, at least 75% of homes should have affordable access to actual download and upload speeds of at least 5 Mbps; and by 2023, almost 100% of home should have affordable access to actual download of 5 Mbps and an increase access to broadband coverage of 4G to not less than 85% of the population by 2024;

g) The Gambia should become a leader and pacesetter in the region in mobile innovation, with the fastest and most extensive communications networks by 2023;

h) By 2024, every Gambian should have affordable access to robust broadband service and the means and skills to subscribe thereto if they so choose;

i) By 2024, every public institution should have affordable access to at least not less than 5Mbps broadband service to anchor institutions such as schools, hospitals and government buildings and an increase in digital literacy in schools to 75%;

j) Expand broadband to all local government areas and districts and to have 75% digital literacy amongst the Government workforce and 65% the total national workforce by 2024;

k) To ensure safety of the public at large, every alarm monitoring and security response service provider should, by 2024, have access to a nationwide, wireless, interoperable broadband public safety network.

10.3.2 Legislations and Regulations for Consideration

Based on the Broadband Policy-2024, the following legislative and regulatory processes in the table below are to be carried out if the policy objectives and the uptake of broadband especially in areas of infrastructure, content, applications, devices, innovation and adoption, privacy and security.

NO	LEGISLATION / REGULATION	SCOPE
1	A new Legislation for Broadband	Sanctions / enforceability
2	A review of the IC Act of 2009	Flexibility for new areas
3	Regulations on a new converged licensing regime	For efficient and effective broadband network and service delivery
4	A review of legislation on intellectual property and copy rights	Enhancing electronic commerce and e-Services

5	A new legislation for data processing and protection	A clear regime for electronic data processing and protection
6	Adopting new Spectrum Management Regulations	Proper resource allocation and ~~nent~~
7	Infrastructure sharing and colocation regulations	To have efficient and cost effective service delivery that takes on board the needs for environment protection
8	A review of legislation for consumer protection	A conducive ecosystem for consumers of the digital economy
9	A legislation determining access to information	The determination of access and access rights pertaining to information
10	A legislation on electronic equipment (computer) misuse and cyber crimes	Ensure security for the use of electronic equipment for the purposes of communication
11	An revised legislation on electronic transactions	Facilitation of the needs of the digital economy
12	Specific regulations for broadband networks and services etc.	To bring about clarity on the dos and dons of broadband network and service provision
13	Network neutrality and the regulation of broadband content	This to ensure efficient content regulation especially where there is no special legislation enacted for broadband.
14	Market determination	This will facilitate and ensure compliance with any determined and agreed roll-out targets.

10.3.3 Actions for Treating Broadband as Critical Infrastructure

This action is to uplift broadband to critical infrastructure status through legislation and the making of infrastructure sharing regulations. There is the action for having cyber security legislations and with special treatment of persons with disabilities. Closely related to this is to have action plans for addressing issues pertaining to infrastructure. The details are as follows:

a) Putting in place physical national network infrastructure master plan that determines and informs all infrastructure deployment especially in terms of the investment benefits and the avoidance of duplicity and superfluous networks;

b) A proper coordination framework for network infrastructure deployment with the consideration of the changing needs of broadband;

c) Having regulations for infrastructure access and sharing as well as proper colocation on the part of all service providers;

d) Putting in place a unified or converged licensing framework in The Gambia;

e) Having the management of the national backbone infrastructure in an entity that does not play any role in retail service provision;

f) Regulations in place dealing with planning, development and network deployment, by both government and private sector in addressing the challenges of deployment of fiber broadband infrastructure across the country;

g) Outlined incentives to encourage special investments in broadband infrastructure and broadband-enabled applications and services;

h) A clear framework for local content and its development;

i) A clear framework for intellectual property rights (IPRs) protection;

j) A non-restrictive and non-intrusive framework for the regulation of online content including OTT services;

10.3.4   Licensing and Authorization Actions – Safety & Security

The defined actions relate to ensuring technology and service neutrality, compliance with security and privacy of broadband network, equipment and systems and having updated security and privacy regulations. The issues of safety and security also concern the devices and these are critical for any growing broadband nation especially in times of emergency. The details are as follows:

a) Having in place a framework for public safety wireless broadband communications;

b) A public safety broadband network with a maritime safety information system;

c) A quality of service parameter, through a regulation, for access to sufficient capacity on a day-to- day and emergency basis;

d) Regulations addressing interoperability, operability of the network and standards for broadband wireless mobile infrastructure and devices;

e) An outline of a regulatory measure for broadband communications during emergencies and improving national cyber security and protecting critical information infrastructure;

f) Regulations to ensure sufficient cyber security and a role for CERT on broadband in times of emergency with a cyber security roadmap;

10.3.5 Spectrum Management Action

The basis of this defined action plan here is to facilitate converged service availability and maximize value and use of spectrum by ensuring flexibility in spectrum licensing and authorization. There is the adopting of internationally harmonized band plans during allocation and assignment of spectrum. The specific programme of activities will include;

a) A revised spectrum allocation process and methods for measuring of spectrum utilization;

b) A strategic spectrum plan for broadband with incentive options;

c) To have rules, based on any applicable law, for the promotion of access to unused and underutilized spectrum;

d) A regulatory determination on making 500 MHz available for broadband use of which, if feasible, 300 megahertz between 2.3 GHz and 3.7 GHz to be made available for mobile use;

e) An outlined measures for complete re-farming of the 2.3 and 2.6 GHz band to allow deployment of broadband services thereon;

f) To plan for the digital dividend resulting from the DSO migration with a view to reallocating some 150 MHz from the analogue broadcast television (TV) bands to broadband deployment;

10.3.6 Growth of Existing Infrastructure Actions

The action plans under this part are to promote competition and entry whilst maintaining incentives for investment in new infrastructure and innovation. Specific policies have been referred to for the determination of incentives for private sector investment in the ICT sector, infrastructure sharing for reducing capital expenditures and operating expenses associated with rollout and operation of broadband and the monitoring of the network.

As the drive is for the Government to take steps in improving the utilization of existing infrastructure to ensure that network providers have easier access to poles, conduits, ducts and rights-of-way. Further, the fostering of infrastructure deployment is to be done by facilitating the placement of communications infrastructure on landed properties. The key activities will relate to:

i.   Having a specific legislations for broadband with clearly defined obligations and sanctions;

ii. Specific regulations under relevant legislations for broadband to be put in place addressing incentives, domain name management, infrastructure access terms, disputes and standards for rental rates for poles in any local government area;

iii. An adopted framework for a universal access regimes (paying into a fund) through "pay" and "play" strategies to facilitate broadband deployment and access;

10.3.7 Vertically Integrated Markets – Competition and Innovation

Further, for enhancing investment, there are action plans that are to promote innovative business models that attract investments along the broadband value chain with defined markets in the broadband value chain such as physical layer, active layer and service layers.

The measures will include:

a) Having sufficient radiofrequency spectrum for existing and new wireless broadband providers in order to foster additional wireless and fixed line competition;

b) Having a certified statistics on actual availability, penetration, prices, churn and bundles offered by broadband service providers to consumers and businesses;

c) Putting in place broadband measurement standards with a clear procedure for update;

d) Regulations in place for broadband performance standards for mobile services and small business users;

10.3.8 Network Neutrality Actions

The considered actions under this area relate to formulating regulations to govern Internet content in the framework of network neutrality. The defined actions are to keep the Internet free and open for everyone. It ensures that providers of Internet access services do not leverage their control of the underlying network infrastructure to interfere with consumers' ability to access the online content, services, and applications of their choice. The measures will include:

a) A clear framework for the effective running of the IXP in The Gambia;

b) The domain name to have been re-delegated;

c) A clear administrative framework for internet service delivery;

10.3.9 Privacy and Data Protection actions

This is one of the sensitive issues for which a number of action plans are identified. They relate to the responsible data collection and data processing, identifying the responsibility of data controllers and raising awareness among younger users, regarding the impact of broadband and new technologies on personal privacy. The related measures include:

a) Legislation and regulations for data protection;

b) The identification of an entity for data protection and processing;

10.3.10   Availability of Broadband Service

With a target of a minimum of 5 Mbps set of actual download and upload speed for every subscriber/user the following measures can enhance this target's achievement:

a) The universal *service* regime with adequate funds for broadband projects;

b) Identified and prioritised universal *service* projects;

c) Creating flexible regulatory incentives for the facilitation of the necessary incentives for operators' network upgrades for broadband;

10.3.11   Affordability, accessibility and Adoption

Cost is the leading barrier to the access and adoption of broadband. The primary incentive for broadband adoption is communication but people with low incomes need special facilitation and help for them to communicate using broadband. The measures will relate to:

a) Identified list with a number of the low-income households based on survey to benefit from special help;

b) A consideration for a free or very low-cost wireless broadband as a means to address the affordability barrier to adoption through universal access measures;

c) The launching of national digital literacy programme;

d) Encouraging and enhancing public private partnerships;

e) Exploring the potential of mobile broadband access as a gateway to social inclusion;

f) Enhancing the capacity of any select committee on broadband for broadband development;

10.3.12   Broadband for Improving Government Services

With the e-Government initiative, the Government can use broadband for more efficiency in its service delivery to the people, businesses and other Governments. It can even help local authorities and communities deploy more broadband capability. The activities in this regard will include:

a) Having an improve Government connectivity and online presence;

b) Government agencies and departments to be in a position to serve as broadband anchor tenants for un-served and underserved communities;

c) Government to develop a vision and strategy to guide its agencies on cloud computing;

d) MOICI having a plan for annual competition to recognize internal efforts to transform government using broadband-enabled technologies;

e) Having clear regulations and guidelines for an efficient online service delivery for Government-to-Government (G2G) and G2C applications;

f) Having conducted a review of the business process in Ministries for reducing paper-work and increasing online service delivery;

g) Having an improved and interactive government websites accessible to people with disabilities;

h) Having in place an adopted framework of public-private cyber security partnerships for broadband;

10.3.13 Education

The Gambia is way behind in terms of education for the new information technology-based economy. The widening gap between the skills of graduates and modern workforce demands is a concern. Among others, the activities for encouraging the enhancement of education through broadband include:

a) An adopted framework for online learning with establish standards to be adopted to ensure locating, sharing and licensing digital educational content;

b) A review of legislations to encourage copyright holders to grant educational digital rights of use, without prejudicing their other rights;

c) Having standards for electronic educational records and connectivity through the minimum broadband for schools and libraries with the right funds accordingly;

d) More supply of digital educational content online with compatible standards;

e) Re-examining the digital data and interoperability standards to ensure that they are consistent with the needs and practices of the educational community;

f) Supporting and funding for research and development of online learning systems;

g) Having an open licensed and public domain software alongside traditionally licensed solutions for online learning solutions;

10.3.14   Health Care

As health is key to development and reducing the cost of health service delivery the utilisation of broadband is significant. The activities in this area will include:

a) a strategy for e-care technologies, their use and widespread adoption;

b) Reducing regulatory barriers that inhibit adoption of e-health solutions as well as standards for converged communications and e-health care devices;

c) The utilization of the universal service fund for e-health projects;

d) Establishing broadband infrastructure for health with the appropriate funding mechanism to deliver service at locations where existing networks are insufficient;

10.3.15   Research and Development

In developing a knowledge-based economy through broadband, research and development is equally central for any measure of success. As the area of general research and development especially for broadband is rather neglected, the activities here will include:

a) Having a clear agenda, priorities and research road map for broadband-related research and development funding;

b) A legislation or cabinet decision for allowing increase use of government resources for research and development;

c) There will be focus on broadband research and development funding on projects with varied risk- return profiles, including a mix of short-term and long-term projects;

10.3.16   Review and Monitoring

As the broadband policy was developed through a consultative process, the following activities are important to ensure the continuous ownership and implementation of the strategic activities.

a) Enhancing the ICT Agency to oversee and push through the broadband agenda under this Plan. Noting that the ICT Agency, among other things, is to:

i. To govern and deliver the implementation of all broadband projects;

ii. Coordinate the provision of critical services (e.g. power/electricity to schools, libraries, hospitals);

iii. Coordinate the supply of ICT equipment to other government facilities;

iv. In collaboration with PURA ensure that the networks and services deployed are aligned with the implementation of e-government and other government priorities /initiatives that require broadband;

v. Ensure that all aspects of broadband (supply and demand side issues) are considered in the framework of implementation.

b) Having a clear framework to cater for and promote the required legislations and regulations pertaining to broadband adoption;

c) Creating a performance dashboard for broadband with metrics designed to track broadband policy goals in line with the broadband strategic plan;

d) A report framework on broadband for submission to the national assembly annually;

e) A monitoring framework will be developed to monitor attainment of the implementation of the broadband ecosystem;

f) Having an annual self-assessment workshop on the successes and constraints in their adoption and utilisation of broadband networks;

10.3.17   Funding for the Implementation

A critical success factor for the success of any broadband policy and Plan is very much dependent on the funding it receives. Accordingly, the following activities relate to the funding of this Plan:

a) Legislation on broadband that also determines a specific source of funding ands or allocation of a certain percentage of national for broadband;

b) Putting in place a universal service fund for broadband service;

c) Imposing s specific levy on special services that could be used for broadband;

11. FINANCE AND INVESTMENT MODELS

In today's world of ICTs and business, broadband now represents the factual mainstay of the digital economy due to its transformative potential for all aspects of society. This strategy therefore represents a development agenda to ensure that digital inclusion for all is achieved in The Gambia. It is observed that there would be a need for effective cooperation between the private and the public sector in ensuring universality and affordability of broadband. There are numerous investment models for broadband deployment.

11.1 Investment Models

The success or failure of a broadband deployment project depends on the investment model that assesses the financial viability of the venture as well as the financing model. Investment relates to matters of capital, operating expenses and revenues, assumptions and the metrics of business viability in the forms of return on investment and net present value. The financing model does address the approach that is to be followed to fund the required investment to roll out infrastructure. The other constraining factors would be elaborated for the purposes of this strategic plan.

Reference would be made to the common government collaboration models for investment in broadband. These will include public private partnership for broadband roll out in The Gambia and design build and operate (DBO) through which the private partner is responsible for the design as well as the building and operation of broadband facilities. The issue of public-private community partnership (PPCP) being a special variation of PPP is a partnership in which the local community is one of the partners involved with the emphasis on the need for local participation and local development. The other model being private sector funding (PSF) involves the development of schemes as the government can allow private actors to earn a reasonable return on investments in those projects where they accept all the risks. The model of collaborative government funding encourages the government's collaboration with local entities that have relevant expertise in broadband related aspects such as the laying of public physical infrastructure to roll out aspects of the broadband.

11.2 Business Model

In simple terms, a broadband network generally comprises the following:

a) A passive infrastructure and these are the ducts, cables, masts, premises etc.;

b) Active equipment for applying the technology including transponders, routers and switches as well as the control and management servers;

The applications and services are delivered through the above and these layers are characterized by different technical and economical properties

and different business roles. Through this there are physical infrastructure provider that owns and maintains the passive infrastructure. The network provider operates the active equipment with ownership rights and the service provider delivers the digital services including e-health, elderly care, TV, Internet, phone, video-conferencing, entertainment, teleworking, smart monitoring, etc.

The major assumption here is for the government to adopt and apply a converged licensing framework.

11.3 Financing Broadband

In the commentary on the NICI plan's implementation, the issue of insufficient financial resources have been identified as one of the crucial factors that affected the implementation of the NICI Plan. The practical sources of funding that can be pursued may be through structured public-private partnerships, a further liberalization measures to attract investors into the broadband infrastructure space and the possible privatization of any state owned company (Gamtel/Gamcel) to improve efficiency. The others relate to a legislative approach and or the use of a universal access framework.

12. ROLES OF STAKEHOLDERS IN THE IMPLEMENTATION

It may be important to restate the focus areas within this strategy as under;

a) Policy, legislation and regulation;
b) Infrastructure and connectivity;
c) Services, content, and applications;
d) Capacity building and innovation;
e) Devices; privacy and security;
f) Finance and investment;
g) The institutional framework to deliver the strategy;

A careful consideration of the strategic activities regarding broadband ecosystem's development has been outlined above. The related strategic initiatives with defined programs and stakeholder responsibility with cost are equally outlined. This centres on the determination of the Government with incentives for encouraging private sector investment in networks across the country and the proper management of the investment. The stakeholder to provide and ensure the stimulation of innovations, reduction of cost through network and infrastructure sharing and the creation of an enabling institutional, regulatory, policy and legal environment would be identified.
All defined programs have a stakeholder assigned for delivery. The key stakeholders with regard to the strategy's implementation include;

a) The national assembly for enacting the necessary legislation;
b) MOICI as the custodian of this strategy to monitor implementation;
c) Office of the President;
d) MOFEA for the PPPs
e) Ministry of works and Infrastructure;

f) NAWEC;
g) IXP;
h) GRTS;
i) GBOS;
j) University of The Gambia
k) GCCI
l) Local government authorities

13. DEPLOYMENT, DELIVERY AND GOVERNANCE MANAGEMENT

Two issues are addressed, to wit: the governance and delivery structures established for the strategic plan and the strategic mapping for the alignment of strategic objectives.

13.1 Governance and Delivery Structure

The recommendation is for enhancing the ICT Agency with a clear structure to govern and deliver the implementation of all projects under this strategic plan. This Agency will coordinate the provision of critical services (e.g. power/electricity to schools, libraries, hospitals) and the supply of ICT equipment to other facilities. It will further ensure that the deployment networks and services are aligned with the implementation of e-government and other government priorities /initiatives that require broadband. Lastly, it will guarantee that all aspects of broadband (supply and demand side issues) are considered in the framework of implementation. MOICI may, if considered necessary, facilitate the creation of a special committee to be establish by the National Assembly for legislative and regulatory works for broadband.

13.2 Strategic Mapping

To ensure easy implementation and performance management in relation to the strategy, a framework for strategic mapping is carved out through which the strategic objectives are linked with the broadband strategy's subject areas and the performance measures, which address each of the strategic objectives with clear measurable performance indicators. This is, for now provided in an annex below.

14. RISKS MANAGEMENT AND MITIGATION STRATEGIES

There are risks for the implementation of this strategy. To manage the risks, an outlined risk mitigation strategies are considered and this is placed in an annex for the purposes of this Plan.

15.   THE FUNDING MECHANISM

A key emphasis of the strategy is based on the role of both the public and private sector in its funding especially of the required broadband infrastructure. The Government's participation and those of the private sector investments and development partners are considered as key for this strategy's implementation to be successful. The areas for the focus of the funding include incentivizing infrastructure rollout in remote areas and in areas burdened by the challenges of the profitability of broadband investments.

15.1 The Budget & Funding for the Implementation of this Strategy

The budget considered for this strategy would is determined at an estimated total of **D65, 000,000** (Sixty-Five Million Dalasis) excluding a few areas that need to be addressed by universal service fund activities. As for some areas as indicated by the asterisks the estimate is in relation to their start up as for example in the recommendation to enhance the ICT Agency for broadband development.

15.2 Source for the funding

The funding can be sourced from private investments through PPPs with the expectation that the Government will provide an enabling environment through defined incentives. There will be an integrated planning for broadband projects with the objective of ensuring successful implementation. The other measures through which funding can be facilitated include a legislation-determined fees or universal service fund approach.

16.   MONITORING AND EVALUATION FRAMEWORK

16.1 Monitoring and Evaluation of Broadband Plan

The implementation of the planned activities would be subject to periodic review, monitoring and evaluation. The monitoring and evaluation framework is to manage compliance with the clear timelines for deliverables to be prepared and publicized to all implementing agencies and to ensure proper tracking of progress. There is a clearly defined responsibility line in order to avoid ambiguity on whose responsibility the results and an outcome is in each aspect of the strategy. The ICT Agency will perform the monitoring and evaluation function. It shall use a clear and easy to use template for the monitoring of broadband deployment.

The frequency of measurement and reporting would also be addressed by outlining the monthly updates, quarterly projects implementation status, the annual program implementation status and annual stakeholder forums, midterm review at the end of Year 2 for each subject area achievements and an end term review which will be done in the fifth year of the Strategic Plan. There would be a review for the formulation of the strategy for the next five-year cycle.

The implementation framework also entails a communication strategy. The purpose of the communications strategy will be to create awareness, understanding and secure commitment to achievement of The Gambia's vision. The ICT Agency will formulate and implement an appropriate communication strategy for this broadband strategy.

17.   IMPACTS OF THE STRATEGY'S SUCCESSFUL IMPLEMENTATION

The targets as outlined in both the Broadband Policy 2020-2024 and in the Plan speak in detail the impacts of the successful implementation of the strategy in terms of the vast opportunities in the broadband ecosystem, access to information and the leverage on ICTs as enablers and drivers of the national. In summary and among others, the following are considered as the aftermaths of the implementation of this strategy for the further development of the country:

a) The last mile infrastructure and connectivity are to be provided via fixed or wireless means to achieve 100 % national broadband coverage to all levels of the country.

b) There will be service, content and applications architecture that is to enable applications for data sharing.

c) The adopted standards and framework for data classification will be in place for an effective and efficient e-Government ecosystem.

d) There shall be an established clear and comprehensive legal framework for core government data in well protected and preserved digital format in relation to persons, institutions, land, infrastructure and other assets.

e) There will be an efficient capacity building program for The Gambia's digital economy with regards to technology, services and institutions that can facilitate the design and creation of numerous marketable digital works.

f) The creation of digital platforms for the facilitation of general business and e-Government.

18. ANNEXES – PROGRAM OF ACTIVITIES

	18.1 The Strategic Goals	f) Creating and establishing an information society and knowledge-based economy that thrives on broadband impacting on lives, governance, business processes with unlimited opportunities for all citizens. g) Building a broadband ecosystem with a robust competition, innovation and investment. h) The adoption of ICTs by all stakeholders through adjustments to policies, laws and the regulatory framework. i) Using ICT for good and transparent governance process. j) Strengthening The Gambia's global competitiveness and private sector development.
	18.2 The Strategic Objectives	i) An accessible, high-speed and reliable broadband networks in The Gambia that supports the broadband target of 5 Mbps for all subscribers and users. j) The right and relevant policy, regulation and institutional frameworks developed in order to facilitate broadband uptake and delivery. k) A realistic governance structure for the delivery of the broadband strategy including a collaborative framework on delivery with not less than 80% digital literacy within the government workforce. l) Conducive environment for content creation more specifically local content, applications and digital literacy in schools to not less than 95%. m) Funded innovation programs for the youth to become more creative and productive through recognised and workable business and investment models for broadband on open access principle. n) Increasing access to broadband coverage to more than 90% of the population by 2024 including all local government districts in the country.

		o)	A clear and acceptable framework for the management of the national backbone and an adopted strategy for implementing the last mile connectivity.
		p)	Regulatory measures for addressing the constraints of both supply and demand side of broadband.
	18.3 Policy Implementation Expectations (Impacts)	j)	A Gambia becoming a leader and pacesetter in the ECOWAS region in mobile innovation, with the fastest and most extensive communications networks as well as having established another connectivity as alternative to GSC-ACE Cable that is to serve as a reliable back-up for the country;
		k)	Every Gambian should have affordable access to robust broadband service and the means and skills to subscribe thereto if they so choose;
		l)	Every public institution should have affordable access to at least not less than 5Mbps broadband service to anchor institutions such as schools, hospitals and government buildings and an increase in digital literacy in schools to 75%;
		m)	Broadband expanded to all local government areas and districts and to have 75% digital literacy amongst the Government workforce and 65% the total national workforce;
		n)	To ensure safety of the public at large, every alarm monitoring and security response service provider should, by 2024, have access to a nationwide, wireless, interoperable broadband public safety network.
		o)	An efficiently managed national backbone (ECOWAN) providing only wholesale services with all operators being connected on an open access basis in the provision of last mile solutions;
		p)	A successful special framework successfully delivering local content and applications generation in an effective and efficient broadband ecosystem;
		q)	A Gambia benefitting from the right capacity and

		innovative broadband products for development;
		r) A Gambia with at least 75% of homes having affordable access to actual download and upload speeds of at least 5 Mbps; and by 2023, almost 100% of home should have affordable access to actual download of 5 Mbps and an increase access to broadband coverage of 4G to not less than 85% of the population by 2024;

18.1.1		**Broadband as Critical Infrastructure**
No	**Parameter**	**Remark/Comment**
1	Planned Action Type	*Infrastructure related*
2	Background to Planned action	*The general membership of the ITU community is all embracing broadband through the adoption of policies and strategic plans in their march towards the creation of information society.*
3	Description of Planned Action	*Preparing the right policy actions for broadband ecosystem in terms of network infrastructure, services and applications for it to be declared as utility – a critical infrastructure.*
4	Planned Action Implementation Rationale	*Deploy broadband infrastructure for international, national, provincial and local loop (last mile) access for it to have critical infrastructure status;*
5	Planned Action Specific Goals/Objective	*a) National development policies across all sectors are harmonized with regard to broadband strategy and that broadband is embedded in the universal goals of all sectors of the economy* *b) An awareness on the importance and use of broadband - its demand and uptake;* *c) Increase Access to broadband coverage to everyone;* *d) Reducing infrastructure duplication and increased coverage for a harmonize development;* *e) Enhanced connectivity for all stakeholders;* *f) Improved technologies including 3G, 4G and 5G for wireless deployments and connections;* *g) A physical national network infrastructure master plan;* *h) A clear framework for local content development;* *i) A clear framework for the protection of intellectual property rights;* *j) An adopted universal access regime to facilitate broadband deployment and access;*
6	Planned Action Implementation Prerequisites	*a) Having a specific legislations for broadband with clearly defined obligations and sanctions;* *b) Safeguarding open access principle for*

		infrastructure and utilisation;
		c) *Having a market responsive spectrum allocation and pricing;*
		d) *Implementing policies and regulations to promote infrastructure access, sharing and colocation of passive infrastructure and spectrum resources;*
		e) *A coordination framework for network infrastructure deployment with the consideration of the changing needs of broadband;*
		f) *A non-restrictive and non-intrusive framework for the regulation of online content including OTT services;*
7	Planned Action Time Frame	*1st Year of Implementation – by Q2 of 2021*
8	Planned Action Deliverables	*Broadband declared as utility – critical infrastructure.*
9	Time Bound Measurable Targets	a) *A unified or converged licensing framework in The Gambia;*
		b) *The national backbone infrastructure under the management of an entity that is not in retail service provision;*
		c) *Regulations in place dealing with planning, development and network deployment, by both government and private sector;*
		d) *Specific regulations addressing incentives, domain name management, infrastructure access terms, disputes and standards for rental rates for poles in any local government area for broadband uptake;*
		e) *Outlined incentives to encourage special investments in broadband infrastructure, applications and services;*
10	Implementing Agency	MOICI
11	Planned Action Outputs	a) *Improved quality of life in the way citizens work, live and learn;*
		b) *Reduce the Digital broadband divide;*
12	Anticipated	*The citizens, businesses and the Government*

	Beneficiaries	
13	Resource Mobilisation and Costing	*To cater for legislative process, regulations and consultative process - Government allocation and universal service funding – 2% of Operators Gross Turnover*
14	Planned Action Critical Success Factors	*a) Operators to accelerate nationwide 3G and 4G rollout;* *b) Service providers and Government to accelerate fixed (Fiber) Connectivity;*
15	Planned Action Implementation Risks	*Mobile network operators not accelerating nationwide 3G and 4G rollout*
16	Planned Action Monitoring and Evaluation Indicators	*a) Increased 100 % 3G/4G Coverage;* *b) Broadband connectivity to government and tertiary institutions, health and schools;* *c) 3G coverage by 2024, to 100% of population;* *d) Tertiary institutions—100% connected by Q4 of 2022* *e) Primary schools: 65% connected by 2022* *f) Public Health facilities 100% connected by Q4 of 2023;* *g) public sector organization 100%;connected by Q4 2023*
17	Planned Action Implementation monitoring and Evaluation Responsibility	➢ *MOICI, PURA and Operators;*

18.1.2	Efficiency for Broadband Services, Content and Applications	
No	**Parameter**	**Remark/Comment**
1	Planned Action Type	*Regulatory Intervention*
2	Background to Planned action	*Services, content and applications are central in broadband ecosystem's development. This requires regulatory approaches in the forms of issuing regulations, standards and guidelines for each segment of the ecosystem.*
3	Description of Planned Action	*Prioritising the building blocks and their implementation framework (universal service fund) for broadband services, content creation and applications development.*
4	Planned Action Implementation Rationale	*Efficiency in broadband service delivery with the right content and effective applications.*
5	Planned Action Specific Goals/Objective	*a) An effective universal service regime enhancing digital content creation and services for e-learning and schools connectivity;* *b) Available digital literacy programs and e-government services in the delivery of public service;* *c) To ensure creation and availability of relevant content, e-applications and innovative services for all citizens;*
6	Planned Action Implementation Prerequisites	*a) To have a robust competitive framework;* *b) Having digital ecosystem that supports adoption of e-applications;* *c) Securing effective research and innovation in the field of gainful contents and applications development;*
7	Planned Action Time Frame	*The duration of the plan – By Q4 of 2021*
8	Planned Action Deliverables	*An efficient broadband ecosystem*
9	Time Bound Measurable Targets	*a) An incentive package for broadband;* *b) Adoption of technologies for quality, affordable, accessible and relevant broadband services;* *c) Secured broadband services with protected consumer interest;*

10	Implementing Agency	*PURA*
11	Planned Action Outputs	a) *There is relevant local content for all The Gambians;* b) *There are e-applications in all sectors of the economy, such as e-education in all levels of education;* c) *Broadband service in all fields of economic activity e.g. e-health in at least 90% of all health facilities;*
12	Anticipated Beneficiaries	*The citizens, businesses and the Government*
13	Resource Mobilisation and Costing	*To cater for regulatory and consultative process – based on dedicated Government allocation and universal service funding – 2% of Operators Gross Turnover;*
14	Planned Action Critical Success Factors	a) *The available funding;* b) *Having he right legislations and regulations in place;* c) *The Enhancing ICT Agency for Broadband Development;*
15	Planned Action Implementation Risks	a) *The absence of the right licensing framework;* b) *Operators missing on the network roll out targets for broadband;* c) *Change of Government focus on broadband;*
16	Planned Action Monitoring and Evaluation Indicators	a) *Established universal service fund;* b) *Enhanced ICT Agency;* c) *Defined incentives for broadband;*
17	Planned Action Implementation monitoring and Evaluation Responsibility	PURA, MOICI and Operators;

18.1.3	Easy to Acquire and Easy to Use Broadband Devices	
No	**Parameter**	**Remark/Comment**
1	Planned Action Type	*Policy and Regulatory – Devices Acquisition /Type Approval.*
2	Background to Planned action	*There is the fundamental need to increase the number and reduce the total cost of ownership of broadband devices;*
3	Description of Planned Action	*Through establish partnerships with vendors, operators and financial institutions for bulk purchasing and low-interest loans and purchase contracts for devices (including government employees. After getting the devices access points could be – established at district levels with devices for utilizing educational, health and local government facilities;*
4	Planned Action Implementation Rationale	*To reduce the cost of broadband and increase its uptake;*
5	Planned Action Specific Goals/Objective	*a) To promote access to a broadband by the public sector and the citizens for access to e-government services;* *b) Zero-rate Broadband devices to increase affordability and adoption of broadband;* *c) Increase number of devices that impacts on broadband speed and reliability;* *d) Ensure every education facility has devices for broadband;* *e) Having a developed framework for security of IoTs devices based on best practices;*
6	Planned Action Implementation Prerequisites	*a) A clear and comprehensive type-approval regime for ensuring standards compliance and device utilisation;* *b) Proper management framework for e-waste issues;*
7	Planned Action Time Frame	*To be actively pursued in the first 2 years – 2020-2022;*
8	Planned Action Deliverables	*Broadband devices management framework on the types, standards and utilisation.*
9	Time Bound Measurable Targets	*a) An increase demand for devices;* *b) Categorised broadband device;* *c) Strategies for device acquisition;*
10	Implementing Agency	PURA

11	Planned Action Outputs	a) *Increased ownership of devices;* b) *Increased access to broadband;* c) *Use of broadband to improve education;* d) *Increased ownership of smart digital devices;* e) *Increase ownership and use of devices*
12	Anticipated Beneficiaries	The Customers, Operators and PURA
13	Resource Mobilisation and Costing	***See Below***
14	Planned Action Critical Success Factors	a) *Regulation;* b) *Education;* c) *Wider broadband penetration;* d) *Skills of use;* e) *Reasonable cost (Price);*
15	Planned Action Implementation Risks	a) *Failed funding arrangement;* b) *Lack of the required regulations;*
16	Planned Action Monitoring and Evaluation Indicators	a) *Broadband devices regulations including e-waste;* b) *90% increase in the ownership and use of broadband devices;* c) *Reduced cost of owning devices;*
17	Planned Action Implementation monitoring and Evaluation Responsibility	MOICI, PURA, Operators

18.1.4		Safety & Security of Broadband Networks and Services
No	**Parameter**	**Remark/Comment**
1	Planned Action Type	*Regulatory action for enhancing security and safety.*
2	Background to Planned action	*Network security and safety in the utilisation of broadband services are crucial for broadband ecosystem and its uptake.*
3	Description of Planned Action	*This entails putting in place measures for ensuring the security and safety of the broadband networks and their utilisation.*
4	Planned Action Implementation Rationale	*To build confidence in broadband uptake.*
5	Planned Action Specific Goals/Objective	*a) A public safety broadband network with a maritime safety information system;* *b) A workable broadband communications network during emergencies;* *c) Enhanced and effective cross-border cooperation on cyber security issues;* *d) Establishment of a team of local experts with competence in cyber threats and attacks;*
6	Planned Action Implementation Prerequisites	*a) Having in place a framework for public safety wireless broadband communications;* *b) A quality of service parameter, through a regulation, for access to sufficient capacity on a day-to- day and emergency basis;* *c) Regulations addressing interoperability, operability of the network and standards for broadband wireless mobile infrastructure and devices;* *d) Having a cross-border cooperation on cyber security;*
7	Planned Action Time Frame	*By Q3 of 2021*
8	Planned Action Deliverables	*Secured networks for broadband service delivery;*
9	Time Bound Measurable Targets	*A national cyber security framework that promotes the protection of critical information infrastructure with an adopted role for CERT on broadband in times of emergency with a cyber-security roadmap;*

10	Implementing Agency	PURA and MOICI
11	Planned Action Outputs	a) *Effective cooperation on cross border and transnational nature of the cyber space;* b) *Maintenance of a cyber-environment that encourages economic prosperity and certainty of transaction execution while promoting efficiency, innovation, safety, security, privacy and business confidentiality;* c) *Enhanced capacity on Cyber security with broadened knowledge on cyber security within all stakeholders to increase digital literacy among citizens especially for the education, health, research and development;*
12	Anticipated Beneficiaries	*The customers, Operators and the Government;*
13	Resource Mobilisation and Costing	**See below**
14	Planned Action Critical Success Factors	a) *Signing and operationalization of treaties that facilitate cross border cooperation on cyber threats;* b) *Enforcement of Standards for cybersecurity;* c) *Ratifying the AU convention on Cyber security and personal data protection;*
15	Planned Action Implementation Risks	a) *Poor management of network data;* b) *Shadow IT systems and IoTs;* c) *Poor software applications in use;* d) *Limited human resources for the efficient and professional network operations;*
16	Planned Action Monitoring and Evaluation Indicators	a) *Reciprocity agreement/Bilateral Investment Agreements/ Multilateral Agreements;* b) *Adoption/Ratification of the AU convention on cyber security and personal data protection;*
17	Planned Action Implementation monitoring and Evaluation Responsibility	*National Assembly, OP, Ministry of justice, MOICI and PURA;*

18.1.5	Efficient Spectrum Management Framework for Broadband	
No	**Parameter**	**Remark/Comment**
1	Planned Action Type	Policy and regulatory action- Spectrum planning
2	Background to Planned action	*As the country aims at broadband, there is a need for a uniform method to capture the basic spectrum-dependent and operational parameters of broadband spectrum-dependent ecosystem. Clearly, the new broadband ecosystem requires proper spectrum planning especially in view of the current changes brought about by the country's digital switchover project for digital broadcasting.*
3	Description of Planned Action	*Carrying out a review of the country's spectrum management in terms of assignment and allocation.*
4	Planned Action Implementation Rationale	*Effective allocation and assignment of spectrum for broadband;*
5	Planned Action Specific Goals/Objective	*a) Maximize value and use of spectrum;* *b) Adopted working rules for the promotion of access to unused and underutilized spectrum;* *c) Having sufficient radiofrequency spectrum for existing and new wireless broadband services;*
6	Planned Action Implementation Prerequisites	*a) A revised spectrum allocation process and methods for measuring of spectrum utilization;* *b) A strategic spectrum plan for broadband with incentive options;* *c) Expedited deployment of services requiring spectrum;*
7	Planned Action Time Frame	By Q4 2020
8	Planned Action Deliverables	*a) Revised spectrum management framework;* *b) Spectrum recovery for non-usage and reassignment of such spectrum;*
9	Time Bound Measurable Targets	*a) A regulatory determination on making 500 MHz available for broadband use of which, if feasible, 300 megahertz between 2.3 GHz and 3.7 GHz to be made available for mobile use;* *b) Outlined measures for complete re-farming of*

		the 2.3 and 2.6 GHz band to allow deployment of broadband services thereon; c) *To plan for the digital dividend resulting from the DSO migration with a view to reallocating some 150 MHz from the analogue broadcast television (TV) bands to broadband deployment;*
10	Implementing Agency	PURA
11	Planned Action Outputs	a) *Avail spectrum to licensees for bandwidth intensive broadband services;* b) *A regulatory framework for promoting optimal use of spectrum;* c) *Optimal Spectrum Assignment framework;* d) *Market based spectrum allocations;* e) *Offering tax incentives to reduce the cost of deployment of communications infrastructure;* f) *Lower licensing fees for the first entrant;* g) *Subsidized payment of spectrum license and usage fees for public protection and relief services and research and development initiatives;*
12	Anticipated Beneficiaries	Operators, Customers and PURA
13	Resource Mobilisation and Costing	**See below**
14	Planned Action Critical Success Factors	a) *Outlined spectrum incentives for operators;* b) *Re-farming, reassigning and reallocation of spectrum frequencies to facilitate the rollout of new wireless broadband technologies capable of delivering high speeds at the access layer of broadband networks;* c) *Effective enforcement of Re-farming, reassigning and reallocation of spectrum frequencies to facilitate the rollout of new wireless broadband technologies;* d) *Finalized of Regulations for spectrum*

		management;
15	Planned Action Implementation Risks	a) *Failure to initiate quantitative risk assessment of the spectrum use;* b) *Non-responsive spectrum management framework for broadband;* c) *Lack of predictability of policy for future spectrum use:* d) *Access risks including monetary, competition, and environment risks;*
16	Planned Action Monitoring and Evaluation Indicators	*Reviewing of Radio Communication & Frequency Spectrum Regulations;*
17	Planned Action Implementation monitoring and Evaluation Responsibility	*MOICI and PURA*

18.1.6   Having Vertically Integrated Markets – Competition and Innovation

No	Parameter	Remark/Comment
1	Planned Action Type	Policy and Regulatory
2	Background to Planned action	*The anticipated growth and innovation in the broadband requires a number of initiatives going far beyond information technology. Broadband is impacting on almost all areas of public domain including procurement, construction, investment in research and education etc. An effective competition and innovation can make The Gambia an attractive place in which to develop and test new services and expertise. As the ICT as infrastructure constitutes an important precondition for innovation in many areas. Measures for competition and innovation have to be outlined for successful broadband uptake.*
3	Description of Planned Action	*Providing a framework for competition and innovation in broadband services.*
4	Planned Action Implementation Rationale	*Optimal realisation of the potentials of broadband for The Gambia*
5	Planned Action Specific Goals/Objective	a) *Promotion of Competition and Investment in wireless and fixed networks and services;* b) *To ensure adequate resources are available for investment in broadband;* c) *Secure broadband services;*
6	Planned Action Implementation Prerequisites	a) *Regulations in place for broadband performance standards for mobile services and small business users;* b) *Review of Advertising Code for fairness;* c) *Implement technology and Service neutral rules;* d) *Collaborative development of an integrated infrastructure master plan that incorporates communication infrastructure;*
7	Planned Action Time Frame	*By Q3 of 2021*
8	Planned Action Deliverables	*A broadband ecosystem that promotes competition and innovation without any limitation.*
9	Time Bound	a) *Certified statistics on actual availability,*

	Measurable Targets	penetration, prices, churn and bundles offered by broadband service providers to consumers and businesses; b) *Broadband measurement standards with a clear procedure for update;*
10	Implementing Agency	PURA
11	Planned Action Outputs	a) *Fair competition in broadband;* b) *Increased investment in broadband;* c) *Revised and harmonized charges e.g. for licenses, permits/business permits;* d) *Affordable broadband;* e) *Inter-platform competition;* f) *The Gambia becoming a data centre hub;* g) *Adopted technical standards for operation of communications infrastructure to be adopted by all government entities;* h) *Common technical standards and facilitation of the development of international, regional and national backbone that are secure;*
12	Anticipated Beneficiaries	Customers and Operators
13	Resource Mobilisation and Costing	**See Below**
14	Planned Action Critical Success Factors	a) *Integrated deployment of broadband and delivery of broadband;* b) *Formulate specific policies and enacted legislations that encourage investment;* c) *Proactive monitoring and addressing of anti-competitive behaviour;* d) *Environment for ensuring fair competition;* e) *Tax and licensing incentives;* f) *Infrastructure sharing framework;*

		g) *Develop relevant data protection legislation that will make The Gambia safe for data centre operations;*
		h) *Review the Roads/Building Code etc. for harmonization;*
		i) *Develop a mechanism for storage and retention of critical infrastructure information/data;*
		j) *Domesticate the Convention on deployment of resources during emergencies;*
		k) *Domesticate the Budapest Convention on Cybercrime;*
15	Planned Action Implementation Risks	a) *Implement fiscal incentives for broadband deployment*
		b) *Implement PPP for broadband deployment*
		c) *Failing to get the right competition model - infrastructure competition, i.e. facilities-based competition where operators that own their own infrastructure competing directly and retail competition in which the operators separate from those running the broadband facilities can offer service to the end user;*
16	Planned Action Monitoring and Evaluation Indicators	a) *Increase in investment in broadband ecosystem areas;*
		b) *Harmonized deployment of infrastructure with the relevant regulations/laws;*
		c) *Broadband Advertising Code of Conduct;*
		d) *Sanctions for unfair competition behaviour;*
		e) *Draft infrastructure sharing regulations;*
		f) *An enhanced ICT Agency for broadband development;*
		g) *Incorporation of broadband planning into cities planning/building plans/road plans etc.;*
		h) *Amendment of Building Code to include*

			provision of ICT infrastructure within the building code;
			i) Legislation for roads to cater for ducts when building roads, and damages for destructions of operators' infrastructure;
			j) Critical Information Infrastructure regulation for ICT broadband;
			k) Collaboration and Cooperation on International standards;
17	Planned Action Implementation monitoring and Evaluation Responsibility	i)	*MOICI, OP and MOFEA; PURA, Justice Ministry and Operators, Ministry of Lands and Physical Planning Department*

18.1.7		**Ensuring Network Neutrality for Broadband Services**
No	**Parameter**	**Remark/Comment**
1	Planned Action Type	Regulatory – Balancing competition
2	Background to Planned action	*It will be counterproductive for some of the broadband providers to ban other users from accessing their networks and services just because they are not direct customers and or other forms of traffic internet should be treated differently. It is important that a network operator treats all traffic equally without the power to favour one source over another by blocking, throttling, or a means of paid prioritization. This has a direct link with the objectives set out for broadband devices.*
3	Description of Planned Action	*Rules would be laid down for the operators to give consumers access to all legal content and applications on an equal basis, without favouring some sources or blocking others.*
4	Planned Action Implementation Rationale	*To ensure that, through broadband, there is freedom of information exchange and the promotion of competition and innovation for broadband services and the sustenance of standardization. The elimination of preferential treatment in broadband service delivery.*
5	Planned Action Specific Goals/Objective	a) *Having an undistorted choice for all customers;* b) *Ensuring a level playing field for all broadband providers and users;*
6	Planned Action Implementation Prerequisites	a) *A clear framework for the effective running of the IXP in The Gambia;* b) *A clear regulatory framework for internet service delivery;*
7	Planned Action Time Frame	By Q1 2021
8	Planned Action Deliverables	Free network access regime
9	Time Bound Measurable Targets	a) *A re-delegated **.gm** domain name;* b) *Adopted interconnection agreements;* c) *Regulations for internet service;*
10	Implementing Agency	PURA
11	Planned Action Outputs	a) *Internet consumer with freedoms;* b) *Open and unrestricted economic competition;*

12	Anticipated Beneficiaries	*Customers, operators and Government;*
13	Resource Mobilisation and Costing	**See below**
14	Planned Action Critical Success Factors	*A clear policy framework for adherence to network neutrality principle;*
15	Planned Action Implementation Risks	*A policy or regulatory shift from the protection of network neutrality:*
16	Planned **gm** Action Monitoring and Evaluation Indicators	*c) Enhanced innovation in internet service;* *d) Protected consumers from harmful discriminatory pricing;* *e) Protection of the confidentiality of customer's proprietary information" from unauthorized use and disclosure;* *f) An effective regulatory measure to ensure adequate protection of consumer privacy;* *g) New management of the **.gm** domain name;*
17	Planned Action Implementation monitoring and Evaluation Responsibility	PURA and Operators

18.1.8	**Adequate Data Protection and Privacy**	
No	**Parameter**	**Remark/Comment**
1	Planned Action Type	A legislative process
2	Background to Planned action	*As we develop an efficient and effective broadband ecosystem, the potential for personal* data *abuse, theft, loss and* privacy *breaches is considerably higher. This has to be addressed by put in place preventive mechanisms addressing privacy and data protection.*
3	Description of Planned Action	*The strategy is to cater for data protection measures by concentrating on protecting broadband devices (assets) from unauthorized use. The measures for data privacy outline who should have authorized access. It is therefore a required technical and regulatory process in order to ensure confidence and growth.*
4	Planned Action Implementation Rationale	*As value of data is becoming central in communications service delivery, the data must be safeguarded from corruption, compromise or loss especially where the growth in data creation is growing at unprecedented rates.*
5	Planned Action Specific Goals/Objective	*To ensure and enhance data availability, integrity, preservation, responsiveness and confidentiality;*
6	Planned Action Implementation Prerequisites	*a) Defining the infrastructure (national data center) for data protection;* *b) Legislation and regulations for data protection;*
7	Planned Action Time Frame	By Q4 of 2021
8	Planned Action Deliverables	*a) Security of personal data;* *b) Security of privacy in a broadband ecosystem;*
9	Time Bound Measurable Targets	*a) Regulation on data protection and privacy;* *b) Identified entity for data protection and processing;*
10	Implementing Agency	MOICI and PURA
11	Planned Action Outputs	*Effective and applicable data protection and privacy policy;*
12	Anticipated Beneficiaries	*Consumers, Operators, Government and Businesses*
13	Resource Mobilisation and Costing	**See Below**

14	Planned Action Critical Success Factors	*Data protection and privacy standards addressing data privacy, data security, data access, data handling and data retention;*
15	Planned Action Implementation Risks	*a) Regulations failing to outline standards for automated data security measures in identifying threats for protecting data;* *b) The absence of continuous risk monitoring;* *c) Failing to ensure compliance with standards for data security;* *d) Failing to establish Key Risks Indicators for data and privacy protection;*
16	Planned Action Monitoring and Evaluation Indicators	*a) National data center;* *b) Data protection and privacy regulations;* *c) Key risk indicators for data and privacy;*
17	Planned Action Implementation monitoring and Evaluation Responsibility	*PURA, MOICI, Ministry of Justice, National Assembly, Operators*

	18.1.9	**Making Broadband Services Available**
No	**Parameter**	**Remark/Comment**
1	Planned Action Type	Regulatory process for service delivery
2	Background to Planned action	*With a target of a minimum of 5 Mbps set of actual download and upload speed for every subscriber/user there must be measures to enhance this target's achievement.*
3	Description of Planned Action	*This includes series of measures to ensure the availability of broadband service in terms of coverage. The issues of the operator's network design and technology are critical and their connectivity to the national backbone and last-mile coverage.*
4	Planned Action Implementation Rationale	*This is to enhance coverage and quality of service in broadband service delivery;*
5	Planned Action Specific Goals/Objective	a) *Assess the opportunity to expand wired or wireless broadband services to areas not adequately covered by affordable broadband service;* b) *Reassessing the drivers and barriers towards the development of broadband for all;* c) *Understanding and addressing the parameters affecting penetration of broadband services;*
6	Planned Action Implementation Prerequisites	a) *The universal access regime with adequate funds for broadband projects;* b) *Creating flexible regulatory incentives for the facilitation of the necessary incentives for operators' network upgrades for broadband;*
7	Planned Action Time Frame	By Q3 of 2022
8	Planned Action Deliverables	National broadband internet service availability map;
9	Time Bound Measurable Targets	a) *Identified and prioritised universal access projects;* b) *A regulatory framework addressing the outlined parameters for broadband services;*
10	Implementing Agency	PURA
11	Planned Action Outputs	

12	Anticipated Beneficiaries	
13	Resource Mobilisation and Costing	**See Below**
14	Planned Action Critical Success Factors	a) *High level of promotion by the Government;* b) *Aligning the Broadband Policy 2020-2024 with the interest of the stakeholders;* c) *Developing effective competition in the broadband market;* d) *Availability of human and technological capital (infrastructure) for broadband service;* e) *Prioritised broadband facilitation measures by stimulating demand for broadband services;*
15	Planned Action Implementation Risks	a) *Change of Government commitment to broadband;* b) *Slow roll out of broadband networks for reasons of capital for investment;* c) *Inadequate prioritisation for broadband;*
16	Planned Action Monitoring and Evaluation Indicators	a) *The measure of the capacity of each operator in broadband service delivery;* b) *Established level of competition;* c) *Increased investment in broadband;* d) *Reduced market price for broadband services;*
17	Planned Action Implementation monitoring and Evaluation Responsibility	PURA, MOICI and MOFEA

18.1.10 Making Broadband Affordable, Accessible and Adopted by the population

No	Parameter	Remark/Comment
1	Planned Action Type	Policy and regulatory exercise
2	Background to Planned action	*As the ecosystem is built with improved broadband connectivity, it is prudent to make broadband services more widely available and affordable as this would help the businesses to become more competitive as well as provide citizens with access to more efficient government services, educational opportunities and healthcare, especially for people in remote areas or in underserved segments of the population.*
3	Description of Planned Action	*There will be greater efforts to connect more people broadband services in order to have a country that unleashes the benefits of digital technologies. To enable the full reaping of the full benefits there is a need to have affordable and wider access to broadband.*
4	Planned Action Implementation Rationale	*To achieve the benefits of digital economy and an information society.*
5	Planned Action Specific Goals/Objective	*a) Increase broadband coverage in The Gambia;* *b) Ensuring Network Security;* *c) Exploring the potential of mobile broadband access as a gateway to social inclusion;*
6	Planned Action Implementation Prerequisites	*a) Clear structures on broadband development;* *b) Encouraging and enhancing public private partnerships;* *c) The launching of national digital literacy programme;*
7	Planned Action Time Frame	*Begins by Q4 of 2020*
8	Planned Action Deliverables	*An affordable and accessible broadband.*
9	Time Bound Measurable Targets	*a) Identified list with a number of the low-income households based on survey to benefit from special help;* *b) A consideration for a free or very low-cost wireless broadband as a means to address the affordability barrier to adoption through universal service measures;*

10	Implementing Agency	PURA and MOICI
11	Planned Action Outputs	a) *Increased broadband coverage;* b) *Fiscal incentive plans for enhancement and improvement of any layer within the broadband infrastructure value chain;* c) *Facilitate the protection and safeguard of cyber space and data transmitted through networks;* d) *Broadband a critical infrastructure;* e) *Putting in place Communications infrastructure plan;*
12	Anticipated Beneficiaries	*All stakeholders – customers, operators, businesses, the government and citizens*
13	Resource Mobilisation and Costing	**See Below**
14	Planned Action Critical Success Factors	a) *Encourage infrastructure sharing in the un-served and underserved areas;* b) *Issuance of special incentives by government such as tax rebates/subsidies;* c) *Enactment of legislation that focuses on security and advocates for data privacy and protection;* d) *Amendments of laws to cover new areas such as electronic transactions, e-commerce and cyber security etc.;* e) *Include broadband as a critical infrastructure in appropriate laws and regulations;* f) *Review of all network plan to device a proper infrastructure plan for broadband;*
15	Planned Action Implementation Risks	a) *Policy change or shift;* b) *Lack of funding;* c) *Inadequate licensing compliance;*
16	Planned Action Monitoring and Evaluation Indicators	a) *Enactment of Data Protection legislation;* b) *Special legislation for Broadband;* c) *90% broadband coverage;*

		d) *Special budget for broadband;*
		e) *Review of Information Security Policy and Cyber Security Regulations;*
		f) *Coordination and cooperation to be addressed in Critical Infrastructure Plan;*
17	Planned Action Implementation monitoring and Evaluation Responsibility	f) *MOICI and PURA, Ministry of Justice, National Assembly OP, and MOFEA;*

No	Parameter	Remark/Comment
	18.1.11	**Broadband for Improving Government Services**
1	Planned Action Type	*Policy and Regulatory intervention for Government with broadband.*
2	Background to Planned action	*To enable e-Government there is a need for a broadband ecosystem that involves all key stakeholders including the Government. Government's use of broadband will add to the facilitation of universal and equitable access to broadband services across the country, especially in rural and remote areas.*
3	Description of Planned Action	*The Government will be preparing to have online presence through the most common measures like connecting to a broadband service provider with clear strategies.*
4	Planned Action Implementation Rationale	*To enhance government service delivery and reduce the cost of governance.*
5	Planned Action Specific Goals/Objective	*a) Improve Government connectivity and online presence;* *b) Government agencies and departments to be in a position to serve as broadband anchor tenants for un-served and underserved communities;*
6	Planned Action Implementation Prerequisites	*a) Government to develop a vision and strategy to guide its agencies on cloud computing;* *b) Having clear regulations and guidelines for an efficient online service delivery for Government-to-Government (G2G) and G2C applications;* *c) Having conducted a review of the business process in Ministries for reducing paper-work and increasing online service delivery;*
7	Planned Action Time Frame	*To commence by Q3 of 2020*
8	Planned Action Deliverables	*Government's active presence online for Government service delivery.*
9	Time Bound Measurable Targets	*a) Having an improved and interactive government websites accessible to people with disabilities;* *b) A MOICI plan for annual competition to recognize internal efforts to transform government using broadband-enabled*

		technologies;
		c) *Having in place an adopted framework of public-private cyber security partnerships for broadband;*
10	Implementing Agency	MOICI
11	Planned Action Outputs	a) *Government online transactions;* b) *Efficiency in Government service;* c) *Reduced cost of Government service;*
12	Anticipated Beneficiaries	*Government, Citizens, Businesses and operators*
13	Resource Mobilisation and Costing	**See below**
14	Planned Action Critical Success Factors	d) *Government to declare broadband as a critical infrastructure (utility) in appropriate laws and regulations;* e) *Amendments of laws to cover new areas such as electronic transactions, e-commerce and cyber security etc.;* f) *Review of all network plan to device a proper infrastructure plan for Government broadband;*
15	Planned Action Implementation Risks	a) *The lack of available funding;* b) *The human capacity within Government;* c) *Not placing ITCs and broadband as a priority;*
16	Planned Action Monitoring and Evaluation Indicators	a) *Strong online presence of the Government;* b) *Increased online activities of the Government in terms of service delivery;* c) *Adopted E-Government framework;*
17	Planned Action Implementation monitoring and Evaluation Responsibility	*MOICI, all Ministries, Government institutions and agencies.*

18.1.12		**Enhancing Education Through Broadband**
No	**Parameter**	**Remark/Comment**
1	Planned Action Type	*Policy*
2	Background to Planned action	*There is a need to use broadband to enhance education. This has impacts on the needed human capacity for broadband adoption and utilisation.*
3	Description of Planned Action	*This relates to outlining activities through which broadband can immensely benefit the educational sector of the economy.*
4	Planned Action Implementation Rationale	*Improving quality of education, expanding access and relevance.*
5	Planned Action Specific Goals/Objective	*Reducing the cost and inconvenience of education by creating access to learning materials regardless of geographical location of the learner or the institution that provides the service;*
6	Planned Action Implementation Prerequisites	*a) An adopted framework for online learning with establish standards to be adopted to ensure locating, sharing and licensing digital educational content;* *b) Re-examining the digital data and interoperability standards to ensure that they are consistent with the needs and practices of the educational community;* *c) Supporting and funding for research and development of online learning systems;* *d) Having an open licensed and public domain software alongside traditionally licensed solutions for online learning solutions;*
7	Planned Action Time Frame	*By Q2 of 2021*
8	Planned Action Deliverables	*Sustainable e-Learning projects with impact on education service delivery and governance.*
9	Time Bound Measurable Targets	*a) Adequate legislations to encourage copyright holders to grant educational digital rights of use, without prejudicing their other rights;* *b) Having standards for electronic educational records and connectivity through the minimum broadband for schools and libraries with the right funds accordingly;* *c) An available supply of digital educational*

		content online with compatible standards;
10	Implementing Agency	*MOICI and the two Ministries for Education*
11	Planned Action Outputs	*a) Enhanced e-Learning;* *b) Easy access to education materials;*
12	Anticipated Beneficiaries	*Students, businesses, universities, educational institutions, Government*
13	Resource Mobilisation and Costing	**See Below**
14	Planned Action Critical Success Factors	*a) A coordinated policy approach;* *b) The right infrastructure;* *c) Availability of digital materials as content;*
15	Planned Action Implementation Risks	*a) Capacity of the infrastructure for e-Education;* *b) Disjoint in the practice of e-Education / e-Learning* *c) Limited applications for e-Education;* *d) The local content and language barrier;*
16	Planned Action Monitoring and Evaluation Indicators	*a) Networked learning with communication anywhere anytime;* *b) Effectiveness level in learning and information retention;* *c) High level of interactive learning;* *d) Reduces costs associated with traditional education;*
17	Planned Action Implementation monitoring and Evaluation Responsibility	MOICI, Education Ministries and National Assembly

18.1.13   Improving Health Care Delivery Through Broadband

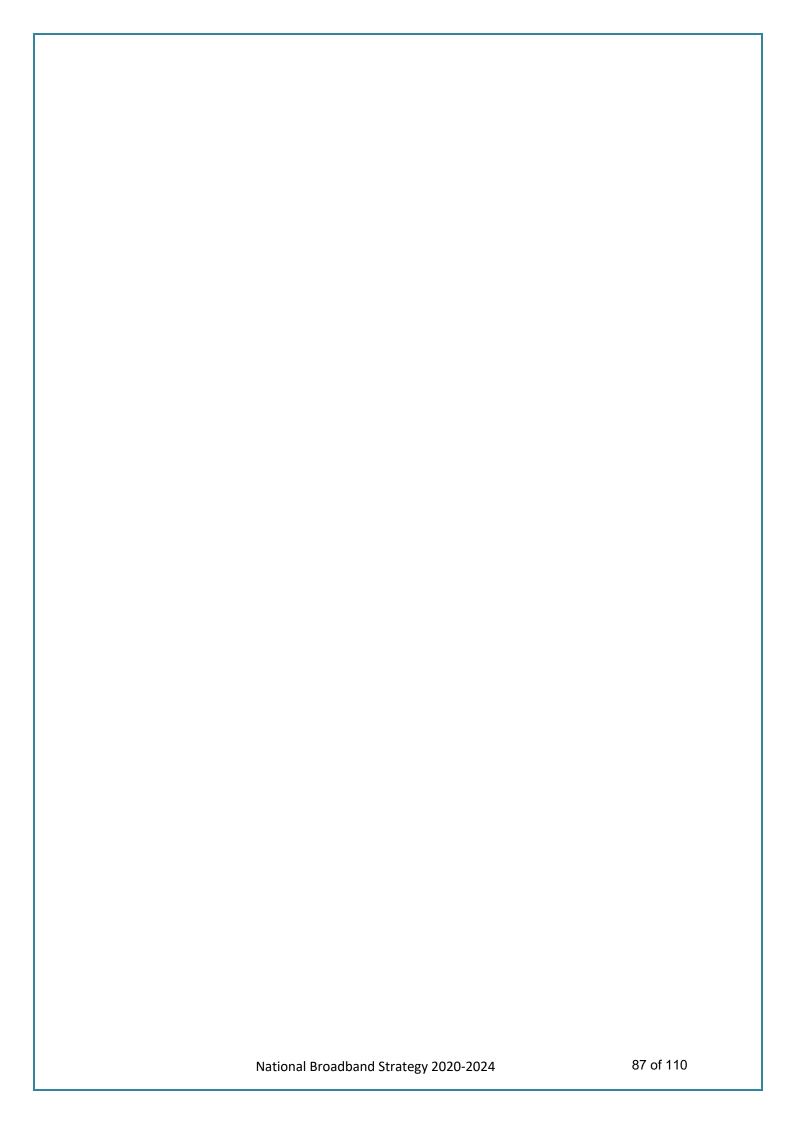| No	Parameter	Remark/Comment
1	Planned Action Type	*Policy action – health and broadband*
2	Background to Planned action	*Today, broadband connectivity and service can serve as an important gateway to health care. In the creation of information society and knowledge based economy, it is important to address the capacity to connect consumers to consumers and citizens to health care services through.*
3	Description of Planned Action	*This relates to specific actions and activities concerning efforts to foster the development of healthcare technology and to improve the quality of health through broadband.*
4	Planned Action Implementation Rationale	*Having universal access to health services.*
5	Planned Action Specific Goals/Objective	*Establishing broadband infrastructure for health with the appropriate funding mechanism to deliver universal health service at locations where existing networks are insufficient;*
6	Planned Action Implementation Prerequisites	*Reducing regulatory barriers that inhibit adoption of e-health solutions as well as standards for converged communications and e-health care devices;*
7	Planned Action Time Frame	*By Q2 of 2021*
8	Planned Action Deliverables	*E-Health projects with impact on health service delivery and efficiency.*
9	Time Bound Measurable Targets	*a) A strategy for e-health care technologies, their use and widespread adoption;* *b) A list of e-Health activities and applications;* *c) A defined component of universal service fund for e-health projects;*
10	Implementing Agency	MOH
11	Planned Action Outputs	*Sustainable e-Health implementation framework.*
12	Anticipated Beneficiaries	*Citizens, Operators, Businesses and the Government*
13	Resource Mobilisation and Costing	**See Below**
14	Planned Action	*a) The presence of proper planning for e-Health;*

	Critical Success Factors	b) *The usability of the broadband infrastructure;* c) *The right type of training for e-Health service delivery;*
15	Planned Action Implementation Risks	a) *Low level of funding and prioritisation on the part of the Government;* b) *Technology risks like usability problems and security issues to problems with accessing the server or malfunctioning devices;* c) *Problems of health practitioner's performance due to needed skills and or flawed broadband network system or application;*
16	Planned Action Monitoring and Evaluation Indicators	a) *An increase in a number of e-Health tools;* b) *Valuable electronic medical records (EMRs);* c) *Personal health records (PHRs);* d) *Developed mobile applications and software for health service delivery;* e) *Developed portals for patients;* f) *information repositories for health service delivery;*
17	Planned Action Implementation monitoring and Evaluation Responsibility	MOH, MOICI, ICT Agency

18.1.14   Enhancing Research and Development with Broadband

No	Parameter	Remark/Comment
1	Planned Action Type	Policy – Research and development
2	Background to Planned action	*Broadband is already becoming an essential service for full inclusion. There would be a need to address the research challenges and opportunities in improving broadband access and adoption in The Gambia.*
3	Description of Planned Action	*This relates to the adopted measures for enhancing research and development for the objective of facilitating the uptake and adoption of broadband services in The Gambia.*
4	Planned Action Implementation Rationale	*This is to aid in innovation and sustainability of broadband services.*
5	Planned Action Specific Goals/Objective	*Having a clear agenda, priorities and research road map for broadband-related research and development funding for broadband and information society;*
6	Planned Action Implementation Prerequisites	*A legislation or a framework for allowing increase use of government resources for research and development;*
7	Planned Action Time Frame	*By Q2 of 2023*
8	Planned Action Deliverables	*Identifying further targets for innovation and growth in broadband.*
9	Time Bound Measurable Targets	*Identified broadband research and development funding on projects with varied risk- return profiles, including a mix of short-term and long-term projects;*
10	Implementing Agency	*University of The Gambia*
11	Planned Action Outputs	*A guide for policy reconsideration and reshaping.*
12	Anticipated Beneficiaries	*Government and all stakeholders*
13	Resource Mobilisation and Costing	**See Below**
14	Planned Action Critical Success Factors	*a) Available funding;* *b) The right capacity to conduct research;* *c) Getting the right subject for research;* *d) The whole support of the stakeholders;*
15	Planned Action Implementation Risks	
16	Planned Action Monitoring and	Fund for research and development; The researchers identified;

		Identified subjects of research;
	Evaluation Indicators	Identified subjects of research;
17	Planned Action Implementation monitoring and Evaluation Responsibility	University of The Gambia and MOICI

18.1.15   Review and Monitoring for Broadband Uptake

No	Parameter	Remark/Comment
1	Planned Action Type	Policy and regulatory measure for review and monitoring.
2	Background to Planned action	*There will be the need to govern the delivery of the implementation of all broadband projects. This would begin with coordination of the provision of critical services like electricity as well as the supply of ICT equipment to other government facilities. E-Government initiatives including the handling of the broadband supply and demand side issues all require proper management.*
3	Description of Planned Action	*Having a dedicated team to ensure a review and monitoring of the implementation of this Plan.*
4	Planned Action Implementation Rationale	*This will enable the systematic tracking of the implementation and outputs as well as the measure of the effectiveness of strategic programmes.*
5	Planned Action Specific Goals/Objective	a) *Delivering efficient and effective broadband projects and initiatives;* b) *To facilitate accountability and provide expertise on deliverables;* c) *Providing broadband infrastructure to specifically cater for persons with disabilities for inclusion in the national broadband strategy;* d) *To ensure data integrity and legal protection during processing and use of data;* e) *Declaring broadband as utility by elevating broadband status to that of utilities such as electricity and water;*
6	Planned Action Implementation Prerequisites	a) *To have the ICT Agency in place;* b) *To put in place an approved list of action plans for broadband;* c) *Broadband solutions for all;* d) *Critical broadband infrastructure Bill to be tabled in the National Assembly;*
7	Planned Action	*By Q1 of by 2021*

	Time Frame	
8	Planned Action Deliverables	*A report based on the review and monitoring framework.*
9	Time Bound Measurable Targets	*a) A performance dashboard for broadband with metrics designed to track broadband policy goals in line with the broadband strategic plan;* *b) A report framework on broadband uptake;* *c) A monitoring framework for broadband ecosystem;* *d) An annual self-assessment workshop on the successes and constraints for utilisation of broadband networks;*
10	Implementing Agency	MOICI
11	Planned Action Outputs	*a) Timely implementation of the action points;* *b) Broadband as a critical Infrastructure;* *c) Coordinated broadband governance and deployment* d) *Digital Inclusion;*
12	Anticipated Beneficiaries	*All stakeholders*
13	Resource Mobilisation and Costing	***See Below***
14	Planned Action Critical Success Factors	*Regular meetings of any special committee of the ICT Agency for monitoring and evaluation of progress in enforcement of strategy;*
15	Planned Action Implementation Risks	
16	Planned Action Monitoring and Evaluation Indicators	➢ *Quarterly meetings, at least 90% of quarterly targets met;* ➢ *Four meetings per annum;*
17	Planned Action Implementation monitoring and Evaluation Responsibility	*The ICT Agency, MOICI, Body representing persons with disability, National Assembly, PURA, and Ministry of justice;*

18.1.16   Funding for the Implementation of Broadband Ecosystem

No	Parameter	Remark/Comment
1	Planned Action Type	*Funding Broadband*
2	Background to Planned action	*The biggest challenge to broadband deployment and uptake is the required funding for broadband.*
3	Description of Planned Action	*This suggests areas for possibility of funding the broadband projects.*
4	Planned Action Implementation Rationale	*To achieve the objectives of this Plan*
5	Planned Action Specific Goals/Objective	a) *A well funded broadband ecosystem;* b) *Certitude in broadband networks, services and applications;*
6	Planned Action Implementation Prerequisites	➤ *Legislation on broadband that also determines a specific source of funding ands or allocation of a certain percentage of national for broadband;*
7	Planned Action Time Frame	BY Q4 of 2020
8	Planned Action Deliverables	Adequate funding and successfully implemented Plan.
9	Time Bound Measurable Targets	➤ *A universal service fund for broadband service;* ➤ *A specific levy on special services that could be used for broadband;*
10	Implementing Agency	*MOICI*
11	Planned Action Outputs	*Achieving the targets outlined by this Plan.*
12	Anticipated Beneficiaries	*All stakeholders*
13	Resource Mobilisation and Costing	**See Below**
14	Planned Action Critical Success Factors	a) *Approval and adoption of this Strategic Plan;* b) *Availability of funding;* c) *Sufficient funding;*
15	Planned Action Implementation Risks	a) *Change of strategic priorities;* b) *The inability of the development partners to contribute to funding;* c) *Increase in costs not factored for any programme;*
16	Planned Action	Clear and available funds;

	Monitoring and Evaluation Indicators	
17	Planned Action Implementation monitoring and Evaluation Responsibility	MOICI, MOFEA and OP

18.1.17	Broadband Risks Management and Mitigation Strategies	
No	**Parameter**	**Remark/Comment**
1	Planned Action Type	*Policy – mitigating risks*
2	Background to Planned action	*There are risks for the implementation of this strategy. To manage the risks, an outlined risk mitigation strategies are considered;*
3	Description of Planned Action	*Defining the activities to address the identified risks to this Plan.*
4	Planned Action Implementation Rationale	*To eliminate uncertainty and increase certitude in the Plan's implementation.*
5	Planned Action Specific Goals/Objective	a) *To build adequate capacity to deploy broadband and utilize broadband services in all sectors by all The Gambians;* b) *Consistency and stability in broadband service delivery;* c) *A100 % national broadband coverage to all levels of the country;*
6	Planned Action Implementation Prerequisites	a) *The adopted standards and framework for data classification will be in place for an effective and efficient e-Government ecosystem;* b) *There will be an efficient capacity building program for The Gambia's digital economy with regards to technology, services and institutions that can facilitate the design and creation of numerous marketable digital works;* c) *The creation of digital platforms for the facilitation of general business and e-Government;*
7	Planned Action Time Frame	*To begin by Q4 OF 2020*
8	Planned Action Deliverables	*Successful implementation of the Plan.*
9	Time Bound Measurable Targets	a) *The last mile infrastructure and connectivity provided via fixed or wireless means;* b) *An architecture for service, content and applications enabling data sharing;* c) *An established clear and comprehensive legal*

		framework for core government data in protected and preserved digital format;
10	Implementing Agency	MOICI
11	Planned Action Outputs	a) *All The Gambians have an appreciation of the potential of broadband;* b) *All The Gambians are able to use broadband for socio-economic development;*
12	Anticipated Beneficiaries	*All stakeholders*
13	Resource Mobilisation and Costing	***See Below***
14	Planned Action Critical Success Factors	a) *The commitment and support from all stakeholders;* b) *Adequate communication in relation to the identified programmes in this Plan;* c) *Sufficient trust on the part of the stakeholders for implementation;*
15	Planned Action Implementation Risks	*The absence of enough time or funds for the implementation of a strategic agenda;*
16	Planned Action Monitoring and Evaluation Indicators	Having the key risk indicators in place;
17	Planned Action Implementation monitoring and Evaluation Responsibility	MOICI, PURA, MOFEA

18.1.18		Adequate Legislative Framework for Broadband
No	**Parameter**	**Remark/Comment**
1	Planned Action Type	Legislation for broadband
2	Background to Planned action	*There is a need for the highest form of certitude in the legal framework for the delivery of an efficient broadband ecosystem. The new technical developments and related challenges require legislative measures. This would include the making of new laws for all matters broadband.*
3	Description of Planned Action	*The legislative approach would exhaustively address the issues of broadband infrastructure, services, access, the use and benefit from broadband and security of broadband from both the perspectives of supply and demand. The institutional framework for the delivery of broadband needs would be enhanced with the ultimate objective of having broadband treated as critical infrastructure.*
4	Planned Action Implementation Rationale	*Accelerating the benefits of broadband through law*
5	Planned Action Specific Goals/Objective	*An efficient legal framework for broadband and broadband service delivery.*
6	Planned Action Implementation Prerequisites	*a) There is a need for having the relevant sanctions and enforceability measures for broadband uptake;* *b) The existing legislations have be made relevant for the broadband ecosystem;* *c) Electronic commerce and e-Services need legal enhancement;* *d) The need to have a clear framework or regime for electronic data processing and protection;* *e) The broadband ecosystem needs to be made conducive for consumers of the digital economy;* *f) A regime for access to information with determined rights is relevant;* *g) Confidence must not be compromised in the use of electronic equipment for broadband*

		service;
7	Planned Action Time Frame	*To Start by Q3 of 2020*
8	Planned Action Deliverables	*Broadband ecosystem with an adequate legal framework.*
9	Time Bound Measurable Targets	a) *A new Legislation for Broadband declaring it as critical infrastructure - utility;* b) *A reviewed IC Act of 2009 for flexibility and making it relevant for broadband ecosystem;* c) *A review of legislation on intellectual property and copy rights;* d) *Legislation on electronic commerce;* e) *A Data processing and protection legislation;* f) *A review of legislation for consumer protection;* g) *A legislation determining access to information;* h) *A legislation on electronic equipment (computer) misuse and cyber crimes;* i) *An revised legislation on electronic transactions;* j) *Adoption of Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data;*
10	Implementing Agency	*MOICI and NA*
11	Planned Action Outputs	*Adequate legal framework for broadband*
12	Anticipated Beneficiaries	*All stakeholders*
13	Resource Mobilisation and Costing	**See Below**
14	Planned Action Critical Success Factors	a) *Strong commitment, cooperation and collaboration across government and its related institutions;* b) *A clear and flexible legislative frameworks;* c) *Effective governance and leadership;* d) *Sufficient benchmarking;*

15	Planned Action Implementation Risks	a) *A change of Government policy towards broadband;* b) *Misunderstanding of the subjects for legislation;*
16	Planned Action Monitoring and Evaluation Indicators	*Acts of the National Assembly on the related subjects*
17	Planned Action Implementation monitoring and Evaluation Responsibility	*MOICI, National Assembly, Ministry of Justice, PURA*

18.1.19   Adequate Regulatory Framework for Broadband

No	Parameter	Remark/Comment
1	Planned Action Type	Regulation
2	Background to Planned action	*There will be a need to develop instruments and practical tools such as guidelines and regulations on broadband ecosystem addressing the various risk levels as relates to information security. Some of the measures are to promote private sector investments through PPPs and JVs within the ICT sector. This can further create conducive environment for local industry device manufacture, maintenance and recycling.*
3	Description of Planned Action	*The making of regulations for all critical issues of broadband.*
4	Planned Action Implementation Rationale	*To ensure regulatory certitude for broadband.*
5	Planned Action Specific Goals/Objective	a) *To promote broadband infrastructure, services and applications;* b) *To promote infrastructure sharing;* c) *To ensure security of infrastructure online and offline;* d) *Ensure an enabling, responsive, progressive legal environment;*
6	Planned Action Implementation Prerequisites	a) *Regulations ensuring the adoption of the needs of converged licensing for efficient and effective broadband network and service delivery;* b) *A careful plan for proper resource allocation and management;* c) *A framework for efficient and cost effective service delivery that takes on board the needs for environment protection;* d) *The adoption of common technical standards for broadband adoption;* e) *A framework for security of networks and services in accessing broadband services;* f) *A mechanism about clarity on the dos and*

		dons of broadband network and service provision;
		g) Removal of unnecessary access barriers to content;
		h) Market determination standards to facilitate and ensure compliance with any determined and agreed roll-out targets;
		i) A framework addressing the needs of persons with disabilities for broadband utilisation without discrimination;
		j) Identifying opportunities for e-waste management;
7	Planned Action Time Frame	*a) 90% reduction of network duplicity by 2022;* *b) 30% reduction on deployment costs by 2021;*
8	Planned Action Deliverables	Gazetted regulations
9	Time Bound Measurable Targets	*a) Regulations on a new converged licensing regime;* *b) New Spectrum Management Regulations;* *c) Infrastructure sharing and colocation regulations;* *d) Type-approval regulations;* *e) Consumer protection regulations;* *f) Specific regulations for the dos and dons of broadband network and service provision;* *g) Broadband content regulation;* *h) Regulations on infrastructure roll out;* *i) Regulations for persons with disabilities for broadband utilisation;* *j) E-Waste regulations;* *k) Development of master plan for integrated infrastructure;* *l) Regulations for Cyber security;* *a) ICT Regulations for persons with disability;*
10	Implementing Agency	PURA
11	Planned Action Outputs	*a) A Collaboration mechanism;* *b) Protection/safeguard of users online;* *c) Protection of broadband infrastructure;*

		d) Spectrum Allocation for Broadband;
12	Anticipated Beneficiaries	All stakeholders
13	Resource Mobilisation and Costing	**See Below**
14	Planned Action Critical Success Factors	*a) Strong commitment, cooperation and collaboration across government and its related institutions;* *b) A clear and flexible regulatory frameworks;* *c) Effective governance and leadership;* *d) Sufficient benchmarking;*
15	Planned Action Implementation Risks	*a) A change of Government policy towards broadband regulation;* *b) Misunderstanding of the subjects for issuing regulations;*
16	Planned Action Monitoring and Evaluation Indicators	*a) Reduced duplicity of resources;* *b) Reduction in infrastructure deployment costs;* *c) Migration to new technologies;* *d) Increased cyber security awareness;* *e) Reduction in financial losses attributed to cyber security breaches;* *f) Reduction in user cybercrime;* *g) Revised Spectrum policy issued;* *h) Relevant policies, legislations and regulations harmonized;*
17	Planned Action Implementation monitoring and Evaluation Responsibility	➤ *PURA and MOICI*

18.1.20 Risks and Mitigation Strategies

RISK	DETAILS	RISK ASSESSMENT	MITIGATION STRATEGIES	STAKEHOLDER ROLES
Insufficient funding of Broadband	Lack of private sector Investment Competing Government priorities	High	Provide incentives for investors e.g. through fiscal and regulatory incentive Prioritize broadband	Government (Legislate and Enforce), Service Providers (Implement), Consumers (Benefit
Poor implementation of broadband strategy	Project planning and management Coordination and delivery	High	Adopt program approach Adopt project management discipline Create and operationalize the ICT Agency	
Lack of supportive policy and legal framework	Delays in enacting legislation Delays in operationalizing enacted legislation	High	Government through MOICI to operationalize legislation process Enforcement of legislation Enhance international collaboration	
Spectrum availability	Insufficient spectrum to deploy last mile solutions	Medium	Expediting frequency re-farming exercise to optimize the utilization of the already allocated spectrum for deployment of mobile broadband Provide spectrum for 5G	

High cost of implementation	Cost of infrastructure Duplication of infrastructure Lack of coordination of civil works to ICT works Use of obsolete technologies	Medium	Issuance of regulations for infrastructure sharing Provide tax incentives Use of alternative technologies appropriate for The Gambia	
Slow uptake of broadband services	Lack of relevant content High-priced broadband devices and services Low awareness Low ICT literacy	Medium	Development of relevant content Provision of tax incentives/subsidies for devices Promotion competition Implement capacity building strategies including awareness creation	
Service availability	Maintenance of infrastructure Damage and sabotage	Medium	Enforcement of Service Level Agreements (SLAs) Enactment of legislation for broadband as a critical infrastructure	
Governance and delivery structure	Absence of an effective governance	Medium	Within the first quarter of its implementation:	

	and delivery structure		Establish ICT Agency The agency will serve as the broadband delivery unit	
Insecurity	The ACE cable at the high fishing zone and the ECOWAN network in the rural areas.	High	Enhance security through legislative measures and patrols in the affected areas	
Domain name system outages	Unreliability of Internet services Paralyzing critical infrastructure Attacks on enterprise websites	High	Ensure availability- have redundancies built into Internet infrastructure Proper control on primary servers Ensure integrity of data by for example implementing domain name system security extensions Proactive monitoring of the DNS	
Typo squatting	Interference with normal operations	High	Educating users installation of SSL certificates Registration of trademarks Buying multiple variations of domain name	

18.1.21	**Cost Estimates of the Programmes - Broadband Strategy**	
1	**BROADBAND AS CRITICAL INFRASTRUCTURE**	
A	*A unified or converged licensing framework in The Gambia;*	D250, 000
B	*The process of placing the management of national backbone infrastructure under the management of an entity that is not in retail service provision;*	D400, 000
C	*Regulations in place dealing with planning, development and network deployment, by both government and private sector;*	D850, 000
	Sub Total Estimate	**D1,500,000**
2	**EFFICIENCY FOR BROADBAND SERVICES, CONTENT & APPLICATIONS**	
A	*An effective universal service regime enhancing digital content creation and services for e-learning and schools connectivity;*	D250,000
B	*Working on available digital literacy programs and e-government services in the delivery of public service;*	D400, 000
C	*Assignment to ensure creation and availability of relevant content, e-applications and innovative services for all citizens;*	D400, 000
D	*To have a robust competitive framework;*	D250, 000
E	*Having digital ecosystem that supports adoption of e-applications;*	D250, 000
F	*Securing effective research and innovation in the field of gainful contents and applications development;*	D400, 000
G	*Determining an incentive package for broadband;*	D250,000
H	*Determining on the adoption of technologies for quality, affordable, accessible and relevant broadband services;*	D400,000
I	*Enhancing the Establishment of the ICT Agency on broadband development;*	D4, 000,000**
	Sub Total Estimate	**D6,600,000**
3	**EASY TO ACQUIRE AND EASY TO USE BROADBAND DEVICES**	
A	*Having a developed framework for security of IoTs devices based on best practices;*	D250,000
B	*A clear and comprehensive type-approval regime for ensuring standards compliance and device utilisation;*	D250,000

C	*Proper management framework for e-waste issues;*	D400,000
	Sub Total Estimate	**D900,000**
4	**SAFETY & SECURITY OF BROADBAND NETWORKS AND SERVICES**	
A	*Enhanced and effective cross-border cooperation framework on cyber security issues;*	D250, 000
B	*Establishment of a team of local experts with competence in cyber threats and attacks;*	D600, 000
C	*Having in place a framework for public safety wireless broadband communications;*	D250, 000
D	*Regulations addressing quality of service parameters, interoperability, operability of the network and standards for broadband infrastructure and devices;*	D250, 000
E	*Having a cross-border cooperation framework on cyber security;*	D250, 000
F	*A national cyber security framework that promotes the protection of critical information infrastructure with an adopted role for CERT on broadband in times of emergency with a cyber-security roadmap;*	D600, 000
	Sub Total Estimate	**D2, 200,000**
5	**EFFICIENT SPECTRUM MANAGEMENT FRAMEWORK FOR BROADBAND**	
A	*Revised spectrum management framework;*	D600, 000
B	*A regulatory determination on making 500 MHz available for broadband use of which, if feasible, 300 megahertz between 2.3 GHz and 3.7 GHz to be made available for mobile use;*	D250, 000
C	*Outlined measures for complete re-farming of the 2.3 and 2.6 GHz band to allow deployment of broadband services thereon;*	D250, 000
D	*To plan for the digital dividend resulting from the DSO migration with a view to reallocating some 150 MHz from the analogue broadcast television (TV) bands to broadband deployment;*	D250, 000
E	*A regulatory framework for promoting optimal use of spectrum and its proper allocation and management;*	D250, 000
	Sub Total Estimate	**D1,600,000**
6	**HAVING VERTICALLY INTEGRATED MARKETS – COMPETITION**	

	AND INNOVATION	
A	*Regulations in place for broadband performance standards for mobile services and small business users;*	D600, 000
B	*Review of Advertising Code for fairness;*	D250, 000
C	*Implement technology and Service neutral rules;*	D250, 000
D	*Collaborative development of an integrated infrastructure master plan that incorporates communication infrastructure;*	D600, 000
	Sub Total Estimate	**D1,700,000**
7	**ENSURING NETWORK NEUTRALITY FOR BROADBAND SERVICES**	
A	*A clear framework for the effective running of the IXP and internet service delivery in The Gambia;*	D250, 000
B	*A clear policy framework for adherence to network neutrality principle;*	D250, 000
C	*New management of the **.gm** domain name;*	D1, 000, 000**
	Sub Total Estimate	**D1,500.000**
8	**ADEQUATE DATA PROTECTION AND PRIVACY**	
A	*Legislation on data and privacy protection;*	D750, 000
B	*Identified entity for regulating data protection and processing;*	D6, 000,000**
C	*Regulations for the National data center;*	D250, 000
D	*Data protection and privacy regulations;*	D250, 000
	Sub Total Estimate	**D7,250,000**
9	**MAKING BROADBAND SERVICES AVAILABLE**	
A	*Assess the opportunity to expand wired or wireless broadband services to areas not adequately covered by affordable broadband service;*	D400, 000
B	*Reassessing the drivers and barriers towards the development of broadband for all and aligning the Broadband Policy 2020-2024 with the interest of the stakeholders;*	D400, 000
	Sub Total Estimate	**D800,000**
10	**MAKING BROADBAND AFFORDABLE, ACCESSIBLE AND ADOPTED BY THE POPULATION**	
A	*Encouraging and enhancing public private partnerships framework for broadband development;*	D250, 000
B	*The launching of national digital literacy programme;*	D10, 000,000**

	Sub Total Estimate	D10,250,000
11	**BROADBAND FOR IMPROVING GOVERNMENT SERVICES**	
A	*Outlining an improvement strategy for Government connectivity and online presence through which Government agencies and departments can be in a position to serve as broadband anchor tenants for un-served and underserved communities;*	D400,000
B	*Government to develop a vision and strategy to guide its agencies on cloud computing;*	D400,000
C	*Having clear regulations and guidelines for an efficient online service delivery for Government-to-Government (G2G) and G2C applications;*	D250,000
D	*Having conducted a review of the business process in Ministries for reducing paper-work and increasing online service delivery;*	D400,000
E	*Having an improved and interactive government websites accessible to people with disabilities;*	D250,000
F	*A MOICI plan for annual competition to recognize internal efforts to transform government using broadband-enabled technologies and to declare broadband as a critical infrastructure (utility) in appropriate laws and regulations;*	D400,000
G	*Having in place an adopted framework of public-private cyber security partnerships for broadband;*	D400,000
H	*Review of all network plan to device a proper infrastructure plan for Government broadband;*	D400,000
	Sub Total Estimate	**D2,900,000**
12	**ENHANCING EDUCATION THROUGH BROADBAND**	
A	*Having standards for electronic educational records and connectivity through the minimum broadband for schools and libraries with the right funds accordingly;*	D600, 000
B	*An adopted framework for online learning with establish standards to be adopted to ensure locating, sharing and licensing digital educational content;*	D400,000

C	*Supporting and funding for research and development of online learning systems;*	D250, 000
	Sub Total Estimate	D1, 250,000
13	**IMPROVING HEALTH CARE DELIVERY THROUGH BROADBAND**	
A	*A strategy for e-health care technologies, their use and widespread adoption with a developed list of e-Health activities and applications;*	D400, 000
B	*Establishing a defined universal service fund for e-health projects;*	D250, 000
C	*Developing e-Health tools, electronic medical records (EMRs), personal health records (PHRs);*	D7, 000,000**
D	*Facilitate the development of mobile applications and software for health service delivery;*	D250, 000
E	*Developed portals for patients and information repositories for health service delivery;*	D2, 000,000**
	Sub Total Estimate	**D9, 900,000**
14	**ENHANCING RESEARCH AND DEVELOPMENT WITH BROADBAND**	
A	*A legislation or a framework for allowing increase use of government resources for research and development;*	D750, 000
B	*Identified broadband research and development funding on projects with varied risk- return profiles, including a mix of short-term and long-term projects;*	D400, 000
	Sub Total Estimate	**D1, 150,000**
15	**REVIEW AND MONITORING FOR BROADBAND UPTAKE**	
A	*A performance dashboard for broadband with metrics designed to track broadband policy goals in line with the broadband strategic plan;*	D400,000
B	*A monitoring and report framework for broadband ecosystem;*	D250, 000
C	*An annual self-assessment workshop on the successes and constraints for utilisation of broadband networks;*	D250,000
	Sub Total Estimate	**D900,000**
16	**FUNDING FOR THE IMPLEMENTATION OF BROADBAND ECOSYSTEM**	
A	*A universal service fund for broadband service;*	**D250, 000**
B	*Identifying and managing a specific levy*	**D250, 000**

	on special services that could be used for broadband based on a legislation;	
	Sub Total Estimate	**D500,000**
17	**BROADBAND RISKS MANAGEMENT AND MITIGATION STRATEGIES**	
A	*The last mile infrastructure and connectivity provided via fixed or wireless means;*	UAF***
B	*As annual assessment of the architecture for service, content and applications enabling data sharing;*	D250, 000
C	*Having an established clear and comprehensive legal framework for core government data in protected and preserved digital format;*	D250, 000
D	*An efficient capacity building program for The Gambia's digital economy with regards to technology, services and institutions that can facilitate the design and creation of numerous marketable digital works;*	D4, 000,000**
E	*The creation of digital platforms for the facilitation of general business and e-Government;*	UAF
	Sub Total Estimate	**D4,500,000**
18	**ADEQUATE LEGISLATIVE FRAMEWORK FOR BROADBAND**	
A	*A new Legislation for Broadband declaring it as critical infrastructure - utility;*	D750, 000
B	*A reviewed IC Act of 2009 for flexibility and making it relevant for broadband ecosystem;*	D750, 000
C	*A review of legislation on intellectual property and copy rights;*	D750, 000
D	*Legislation on electronic commerce;*	D750, 000
E	*A Data processing and protection legislation;*	D750, 000
F	*A review of legislation for consumer protection;*	D750, 000
G	*A legislation determining access to information;*	D750, 000
H	*A legislation on electronic equipment (computer) misuse and cyber-crimes;*	D750, 000
I	*An revised legislation on electronic transactions;*	D750, 000
J	*Adoption of Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data;*	D750, 000

	Sub Total Estimate	D6, 000,000
19	**ADEQUATE REGULATORY FRAMEWORK FOR BROADBAND**	
A	*Regulations ensuring the adoption of the needs of converged licensing for efficient and effective broadband network and service delivery;*	D600, 000
B	*A framework for efficient and cost effective service delivery that takes on board the needs for environment protection;*	D600, 000
C	*A framework for common technical standards, security of broadband networks and services in accessing broadband services;*	D600, 000
D	*Market determination standards to facilitate and ensure compliance with any determined and agreed roll-out targets;*	D600, 000
E	*A framework addressing the needs of persons with disabilities for broadband utilisation without discrimination;*	D600, 000
F	*Identifying opportunities for e-waste management;*	**D600, 000**
	Sub Total Estimate	**D3, 600,000**
20	**MAIN TOTAL**	**D65, 000,000**
	*** These are either representative of an initial support or part of the universal service projects.	

18.1.22	**Summary Cost Estimates**	
1	Broadband as Critical Infrastructure	D1, 500,000
2	Efficiency for Broadband Services, Content and Applications	D6, 600,000
3	Easy to Acquire and Easy to Use Broadband Devices	D900, 000
4	Safety & Security of Broadband Networks and Services	D2, 200,000
5	Efficient Spectrum Management Framework for Broadband	D1, 600,000
6	Having Vertically Integrated Markets – Competition and Innovation	D1, 700,000
7	Ensuring Network Neutrality for Broadband Services	D1, 500.000
8	Adequate Data Protection and Privacy	D7, 250,000
9	Making Broadband Services Available	D800, 000
10	Making Broadband Affordable, Accessible and Adopted by the Population	D10, 250,000
11	Broadband for Improving Government Services	D2, 900,000
12	Enhancing Education Through Broadband	D1, 250,000
13	Improving Health Care Delivery Through Broadband	D9, 900,000
14	Enhancing Research and Development With Broadband	D1, 150,000
15	Review And Monitoring for Broadband Uptake	D900, 000
16	Funding for the Implementation Of Broadband Ecosystem	D500, 000
17	Broadband Risks Management and Mitigation Strategies	D4, 500,000
18	Adequate Legislative Framework for Broadband	D6, 000,000
19	Adequate Regulatory Framework for Broadband	D3, 600,000
	MAIN TOTAL	**D65, 000,000**