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Draft Report 1: RCDF Policy 2017/18–2021/22 (RCDF III)

for

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Abbreviations

Term	Description
2G	Second Generation Telephone Wireless Technology
3G	Third Generation Telephone Wireless Technology
4G	Fourth Generation Telephone Wireless Technology
ARPU	Average Revenue Per User
BTS	Base Transceiver Station
GB	Gigabyte
Gbps	Gigabit per second
GDP	Gross Domestic Product
GIS	Geographic Information System
GNI	Gross National Income
GPS	Global Positioning System
GSM	Global System for Mobile Communications, originally GroupeSpécial Mobile
HSPA	High Speed Packet Access
ICT	Information and Communications Technology
ISP	Internet Service Provider
ITES	ICT Enabled Services
ITU	International Telecommunications Union
IXP	Internet Exchange Point
KRA	Key Result Area
LTE	Long-Term Evolution
M&E	Monitoring and Evaluation
MB	Megabyte
Mbps	Megabits Per Second
MDAs	Ministries, Departments and Agencies
MNO	Mobile Network Operator
NDPII	Second National Development Plan
NITA-U	National Information Technology Authority – Uganda
PPP	Public–Private Partnership
RCDF	Rural Communications Development Fund
SDGs	Sustainable Development Goals
STEI	Science, Technology, Engineering and Innovation
TOC	Theory of Change
UAF	Universal Access Fund
UAS	Universal Access Service
UBOS	Uganda Bureau of Statistics
UCC	Uganda Communications Commission
USAF	Universal Service and Access Fund
Wi-Fi	Local area wireless computer networking technology, allows electronic devices to network

1 Background¹

1.1 Introduction

Uganda Communications Commission (UCC) set up the Rural Communications Development Fund (RCDF) during 2001 as provided for in the Uganda Communications Act, 1997. The Act has undergone revision since then, but the Fund remains a key feature of the law. Under Section 3 (Objectives of the Act) of the Uganda Communications Act, 2013, one of the sub-objectives is:

(g) Establishing and administering a fund for the development of rural communications and information and communication technology in the country.

The role of UCC with respect to Fund is spelt out under Section 5, Functions of the Commission:

(s) To establish and administer a fund for the development of rural communications and information and communication technology in the country;

Outside these provisions, it is left to UCC to develop and implement the framework through which the Fund is operated and to provide operational policies and guidelines as well the broad objectives for the Fund.

Section 1 of this document provides the context, addressing the policy and legal environments as well as the performance of RCDF under the first two (RCDF) policies. It also provides a definition of Universal Service/Access (UAS) as well as the targets derived from the higher level documents that set the aspirations of RCDF. Section 2 gives the new directions, including the Vision, the Mission, and the key Operational Policies. It also provides the governance framework that is all-important to the achievement of the objectives. Environmental risks and their mitigation are discussed in Section 3. Section 4 presents the three strategic programmes derived from the analysis of what needs to be done and are guided by both the current state of penetration of ICT as well as the national penetration targets. The Theory of Change as well as the monitoring and evaluation framework are discussed in Section 5.

1.2 Policy Context

The RCDF Policy 2017/18 – 2021/22 (RCDF III) has its foundation in various key national policy and legal documents that provide both context and direction. In addition to these, it is informed by the first two RCDF policies in terms of experiential learning, and by UCC studies in terms of identifying supply side and demand side gaps. The following documents were the source of both the general guidance and specific objectives to be pursued by RCDF III:

- i. Uganda Vision 2040²
- ii. The Second National Development Plan (2015/16 – 2019/20)³
- iii. The National ICT Policy (2014)⁴

¹ The development of RCDF III (Report 1) draws on research and analysis detailed in two other Reports in this series; Report 2: Background to the Rural Communications Development Policy 2017/18 – 2021/22; and Report 3: The Uganda ICT Sector Performance and Gap Analysis that provides the detailed analysis and insights into how Uganda's ICT sector is currently performing.

² Uganda Vision 2040, <http://bit.ly/2feaLP4>

³ Second National Development Plan (2015/16 – 2018/20), <http://bit.ly/2ltGBaP>

⁴ The final version is not yet on line but can be obtained by contacting the Ministry of ICT and National Guidance

- iv. The ICT Sector Strategy and Investment Plan (2015 – 2020)⁵
- v. The National Broadband Strategy for Uganda (2016 – 2020)⁶
- vi. The Uganda Communications Act (2013)⁷
- vii. RCDF Policies I (2001) and II (2010/11 – 2014/15)⁸
- viii. Various RCDF Annual Reports and Publications⁹
- ix. UCC, A Study into Communication Services and Infrastructure across the Country¹⁰
- x. UCC, Analysis of the Access and Usage of Communications Services in Uganda, 2015¹¹

1.2.1 The National Vision 2040

The National Vision 2040 very clearly identifies ICT access and utilisation not just as a crosscutting development enabler but also as a major business opportunity. This provides the highest policy level underpinning to the imperative for universality of ICT in Uganda: the country cannot achieve the planned development targets if any sections of the population cannot exploit the opportunities provided by ICT access and usage.

1.2.2 The National Development Plan II

The Second National Development Plan under Vision 2040 has two action areas that RCDF in collaboration with other agencies needs to respond to:

- i. *Implementing last mile connectivity countrywide in collaboration with the private sector; and*
- ii. *Promoting production and use of low-cost locally assembled devices in collaboration with the private sector.*

These will have a direct impact on eliminating access and affordability gaps

1.2.3 The National ICT Policy

The National ICT Policy 2014 provides the most comprehensive guidance to RCDF through the following priority actions that are given under the Universal Access sub-theme (not in the original order).

- i. Roll out the last-mile broadband access countrywide in the shortest possible time;
- ii. Subsidize infrastructure deployment, including broadband, that would foster universal access/service;
- iii. Utilize existing infrastructure (Post Offices, Schools, Hospitals) to extend universal access/service;
- iv. Provide computers in public places (e.g. post offices, schools, public libraries, etc.) in small and large communities to help low-income segments of society gain access to the Internet and for business, educational and other purposes.

⁵ ICT Sector Strategy and Investment Plan 2015 – 2020, <http://bit.ly/2kVQjVg>

⁶The National Broadband Strategy for Uganda (2016 – 2020), <http://bit.ly/1qjfsci>

⁷The Uganda Communications Act, 2013, <http://bit.ly/2kKCCX7>

⁸ RCDFC Policy 2010/11 – 2014/15, <http://bit.ly/1K9Qy1C>

⁹ RCDF Reports and Publications, <http://bit.ly/2k5XKKC>

¹⁰ UCC, A Study into Communication Services and Infrastructure across the Country, 2016. <http://bit.ly/2eCrbNB>

¹¹ UCC, Analysis of the Access and Usage of Communications Services in Uganda, 2015. <http://bit.ly/2fxR6em>

The Policy also provides the following relevant direction in terms of strategy and/or priority actions under the various sub-themes (again not in the original order):

- i. Promotion of reliable and affordable ICT infrastructure in rural, remote and other underserved areas;
- ii. Develop rural investment incentives to facilitate the expansion of the national postal infrastructure;
- iii. Advocate for investing (*by the private sector*) in ICT projects for rural and underserved urban areas, as well as traditionally disadvantaged areas;
- iv. Facilitate and encourage the use of ICT by special interest groups to make them more productive in the society and utilize this largely untapped human resource. (Special interest groups include: women, youth and PWDs);
- v. Promote the development of telecommunications products and services in local languages, taking into consideration the special needs of rural or poor communities, women, and people with disabilities;
- vi. Create opportunities and provide assistance for the disadvantaged, people with special needs, women and the youth to acquire ICT skills;
- vii. Awareness creation and mind-set change;
- viii. Increasing penetration of ICT equipment, services and applications

1.2.4 The National Broadband Strategy and the ICT Sector Investment Plan

Both the ICT Sector Investment Plan (ICTSIP) and National Broadband Strategy (NBS) are very specific that RCDF should now target universal access to broadband as the key objective. The NBS in addition gives progressive broadband access targets that will guide RCDF.

Within this policy, the definition of broadband below, as used in the NBS, has been adopted because it is more consistent with the ITU standard than the definition in the National ICT policy:

- *“For the duration of this strategy (2016-2020), broadband for Uganda means a robust connectivity that is affordable, always on and delivers a minimum of 3Mbps to the user for applications, content and services.”*

Universal Access, again as defined in the NBS, is also adopted in this document to mean:

- *“Access to ICTs within a radius of approximately 5km per household.”¹²*

The NBS sets out a number of key broadband targets that need to be achieved by 2020. These include the following that relate directly to RCDF:

- i. Minimum broadband speeds of 3Mbps

¹²There is no rationale given to justify the assumption that 5km is close enough, and it will be a responsibility for RCDF to guide policy makers on what should be considered close enough within the context of the challenges face by rural communities, especially in cases of emergency.

- ii. Broadband access penetration of 50% and 100% for rural and urban areas respectively
- iii. 100% of district and sub-county headquarters, health centre IVs and secondary schools with broadband connectivity
- iv. 50% of primary schools with broadband connectivity
- v. Cost per Mbps of broadband in relation to average income reduced to 10%
- vi. 40% of the population digitally literate

Table 1 below summarises the stepped targets for broadband access penetration in both urban and rural areas:

Table 1: Broadband connectivity targets for National Broadband Strategy

	2016	2017	2018	2019	2020
Urban	15%	25%	40%	60%	100%
Rural	1%	5%	15%	30%	50%

Source: Reproduced from National Broadband Strategy

1.2.5 RCDF Policies I and II

Reviews of the first two RCDF policies show that while the fund has achieved progressive penetration of ICT infrastructure into previously unserved and underserved areas, there was no outcome/impact based monitoring and evaluation framework as part of the planning, making assessment of performance, however well-conducted, superficial because it must necessarily focus on deliverables rather than outcomes and impact. Secondly, while the National ICT Policy addresses ICTs in health, agriculture, and education, the reviews show that the interventions especially under RCDF II were not sustainable: This leads to the conclusion that any such initiative must be led and owned by the line ministries or agencies that have the requisite skills to ensure that holistic and sustainable approaches are used, with RCDF only providing partial support.

1.3 Definition of Universal Access/Service (UAS)

The definition of Universal Access/Service (UAS) emerges from the key policy documents along with some rationalisation. NBS states that:

“For the duration of this strategy (2016-2020), broadband for Uganda means a robust connectivity that is affordable, always on and delivers a minimum of 3Mbps to the user for applications, content and services.”

NBS however does not factor in cost to the user, an essential parameter when considering the RCDF target population. ICTSIP brings in cost, but this is more about lowering current costs than achieving costs affordable by everyone, with focus on the RCDF target population. For purposes of setting an RCDF target, the ITU Broadband Commission affordability benchmark is used: **500 MB worth of downloads per month should not cost more than 5% of the national average monthly income.**

Uganda's GNI per capita published at the end of 2016 (based on 2015 data)¹³ was \$700 or about \$60 per month. This means that 500 MB of downloads per month should not exceed a cost of \$3 per month or about UGX 10,000 at the January 2017 exchange rate: current costs are twice this amount.

For purposes of this policy, the following three parameters will define the targets for UAS:

- i. *Broadband capacity: always on bandwidth of at least 3 Mbps download and 1 Mbps upload speed (Taken from NBS and upload speed assumed);*
- ii. *Broadband access point (wired, fixed wireless, or mobile wireless) within a maximum radius of 5 km (inferred from ICTSIP); and*
- iii. *Cost of 500 MB of downloads less than UGX 10,000 per month (Taken from the ITU Broadband Commission Affordability Benchmark).*

Where shared public access is the approach used, sufficient access points should be provided to enable each potential user to be online for a nominal one hour per day.

1.3.1 Served and Underserved Areas

The terms “unserved and underserved areas” were used several times in the earlier RCDF policy documents as well as associated reports without any definition. The following definitions are assumed in this policy:

“Unserved area,” means any location in Uganda that is inhabited by people, or in which people carry out any kind of income generating activity, or through which people routinely transit, but where access to a defined service¹⁴ is non-existent by virtue of the absence of the requisite wired or wireless connectivity.

“Underserved area” means any location in Uganda that is inhabited by people, or in which people carry out any kind of income generating activity, or through which people routinely transit, but where access to a defined service is confined to less than 25% of potential users¹⁵ due to cost and other barriers to utilisation.

25%¹⁶ has been used as the nominal ICT national penetration threshold above which investment in ICT would start having a significant positive impact on GDP. These definitions have been adopted so that RCDF can be guided in identifying the locations where interventions are required, and in arriving at cost estimates for achieving universal broadband.

For purposes of clarity, it should be noted that the definition for Rural in this policy is as used by the Uganda National Bureau of Statistics for the 2014 National Census¹⁷: Urban areas are gazetted cities, municipalities, town councils and town boards. In March 2016, there were 259 urban centres including Kampala Capital City, 33 Municipalities, 163 Town Councils and 62 Town Boards. The rest are considered rural areas.

¹³ Gross national income per capita 2015, Atlas method and PPP, <http://bit.ly/2kW06uO>

¹⁴ Defined service in this policy refers to any services that may be defined from time to time by UCC or the Ministry for ICT as a required in the basic access requirements. Within the context of this Policy, this is broadband.

¹⁵ This is by population

¹⁶ See Report 2, Section 7.2.1

¹⁷ National Population and Housing Census 2014 report (section 2.4, pg. 10) <http://bit.ly/2lqhCoi>. Other guides include <http://bit.ly/2lXfGXh> on specific description Principles and Recommendations for Population and Housing Censuses and <http://bit.ly/2mIDHbF>

1.4 The Purpose of RCDF

All the direction and specific activities stated in the national policy documents reduce to the following major areas of concern that RCDF will need to address for their target groups:

- i. **Connectivity:** the presence of a point, wired or wireless, where an access device (dedicated or shared) can be connected for access to online applications and services
- ii. **Access:** the presence of a device (dedicated or shared) that provides the final technology step for users to interact with online applications and services
- iii. **Affordability:** the ability to meet the cost of access devices (or usage fees for using such shared devices) as well as the cost of using online services and application, all within an acceptable portion of one's income.
- iv. **Equity:** That no one should be kept out of the space for exploiting ICT opportunities due to location, physical inability, age, gender, and for a transitional period, level of literacy, technology literacy, or language.

This captures the purpose of RCDF.

1.5 External Driving Forces

While policy and strategy can be defined to take into account the state of technology and its adoption (in Uganda) as well as projected future scenarios, the reality is that many factors and trends are going to impact on operational policy and strategy on a continuing basis, pointing to the need for constant observation of the political, socio-economic, and technological scenarios to enable timely adjustment to respond to external driving forces. These include:

- i. Trends in the use of social media, especially as the penetration of affordable broadband increase. While these have the benefit of increasing locally generated content, they are also likely to put pressures that are difficult to predict with confidence on the bandwidth requirements, and might indeed require a re-quantification of what is considered acceptable broadband bandwidth. The transfer of an increasing percentage of government to citizen transactions and content to an online environment will have the same compounding effect.
- ii. The rapid evolution of ICT and the demands that this will create over the next five years is also difficult to predict with confidence. This ranges from user devices to bandwidth techniques to innovative spectrum management techniques.
- iii. The Internet of Things has acquired a life of its own, with devices taking up an increasing amount of bandwidth in inter-communication outside the control of the overwhelming majority of users. This will also create security and privacy concerns, especially as manufacturers of devices continue to increase the level of remote control through software updates, including the collection of data about users without their (users) knowledge.
- iv. The level of political pressure on RCDF to achieve targets is a double edged sword: it is good in that it may lead to easier access to funds from the consolidated budget, but it is also risky in that it can lead to targeting short-term populist interventions.

2 Strategic Direction

2.1 Vision and Mission

Vision:

A Uganda where location, physical inability, gender, and cost do not bar any person from harnessing ICT-enabled opportunities for personal empowerment, development, and wealth creation

Mission:

To ensure, through targeted Interventions, that location, physical inability, gender, and cost are not barriers to access to high capacity broadband for any sector of Uganda’s population.

2.2 Key Definitions

Within this policy, the definition of broadband below, as used in the NBS, has been adopted because it is more consistent with the ITU standard than the definition in the National ICT policy:

- *“For the duration of this strategy (2016-2020), broadband for Uganda means a robust connectivity that is affordable, always on and delivers a minimum of 3Mbps to the user for applications, content and services.”*

Universal Access, again as defined in the NBS, is also adopted in this document to mean:

- *“Access to ICTs within a radius of approximately 5 km per household.”¹⁸*

2.3 Key Operational Policies

In pursuit of its Mission, RCDF shall:

- i. Be placed under a governance arrangement that has the participation of industry stakeholders (expert representatives of licensed operators; professionals associations; government ministries and agencies; and others that are part of the broadband value chain) with independence of decision making under the overall policy and oversight guidance of the Uganda Communications Commission;

¹⁸ There is no rationale given to justify the assumption that 5 km as given in the National Broadband Strategy is close enough, and it will be a responsibility for RCDF to guide policy makers on what should be considered close enough within the context of the challenges face by rural communities, especially in cases of emergency.

- ii. Ensure accountability to all stakeholders through both statutory reporting as well as regular public information on operations, and public dialogues for feedback;
- iii. Seek to align with the national broadband policy and coordinate with stakeholders that implement the national broadband strategy;
- iv. Establish human resource capability that parallels the private sector that is involved in similar activities;
- v. Initiate and participate in sector research as well as lobbying and advocacy to ensure that policy and regulatory inconsistencies (within and outside the ICT sector) that militate against the achievement of its Mission or lead to market failures are identified and addressed;
- vi. Ensure evidence based decisions by maintaining (in conjunction with the Uganda Communications Commission and others) up to date data relevant to penetration, utilisation, and impact of ICT opportunities among the marginalised sectors of the population;
- vii. Have a primary focus on capital expenditure for sustainable interventions that lead to direct benefit for the targeted sectors of the population within the medium (2 years) to long term (5 years). Operating expenditure support will be limited to a few justified interventions with demonstrable sustainability and defined short term (1 year maximum) exit timelines;
- viii. Provide support to initiatives that fall under different government line ministries, departments, and agencies (MDAs) only when such initiatives are owned and led by the MDAs as evidenced by internal funding and clear sustainability plans;
- ix. With the allocation from the Levy as a starting point, put emphasis on raising sufficient funding from other sources in order to achieve the universality targets implicit or explicit in the key national policy documents within the shortest possible time; and
- x. Utilise the private sector, especially the contributors to the Levy, as a primary arm of implementing the major connectivity projects. RCDF will handle planning, procurement and disbursement, as well as supervision, monitoring and evaluation.

2.4 Governance

RCDF shall be established by UCC as an operationally autonomous entity overseen by its own Board under the following guidelines:

- i. The RCDF Board will be appointed by UCC for a term of at most four years, renewable once for each member at the discretion of UCC, and with overlapping terms to ensure continuity.
- ii. To be in consonance with the current law, the RCDF Board will be under the oversight of the Uganda Communications Commission that will be responsible for policy direction and giving a “No Objection” to the annual budget.
- iii. The RCDF Board will have the following membership:

- a. A Chairperson (not being a UCC Commissioner) who should be an independent expert who is conversant with the various aspects of telecommunication networks, and with a track-record of governance experience;
 - b. The Executive Director of the Uganda Communication Commission;
 - c. An expert representative from the Ministry of ICT and National Guidance;
 - d. An expert representative identified by the Uganda Institution of Professional Engineers;
 - e. An expert representative identified by the Association of Local Governments;
 - f. An expert representative jointly identified by the dominant service providers; and
 - g. An expert representative jointly identified by the consumer associations
- iv. The Director RCDF will be Secretary to the RCDF Board.
 - v. The funds of RCDF will be derived from the Levy through the Uganda Communication Commission. RCDF will however also work with and through UCC to source additional funding for its programmes from the consolidated fund as well as local and external development partners.
 - vi. RCDF will have accounting separation from UCC, but its reports will be integrated with the UCC reports for purposes of statutory reporting.
 - vii. To the extent permissible by UCC, and provided it is cost-effective and efficient as determined by the RCDF Board, RCDF will rely on UCC systems and staff expertise for some of their activities. The time allocated to RCDF by UCC staff will be recognised through negotiated and documented cost allocations that reflect the RCDF expenditure on human resource, and such costs will be offset from funds UCC would otherwise transfer to RCDF. A similar arrangement will apply if UCC uses RCDF resources.

3 Strategic Programmes

3.1 Programme Areas

RCDF will allocate funding and implement projects within three major strategic programmes:

- i. Broadband Connectivity and Access Programme
- ii. Content Mediation Programme
- iii. Research, Advocacy, and Lobbying Programme

3.1.1 Broadband Connectivity and Access Programme

This will be the core RCDF Programme. This programme is motivated by:

- i. The need to address the very many gaps in access to broadband in order to provide broadband benefits to all communities in Uganda. (It should be noted that within the context of the predominant mobile environment in Uganda, the definition of broadband means that only those locations that have got access to 3G, LTE, or better services can deliver the required performance. Many such locations can get access through appropriate regulatory measures, but this will still leave a big gap for RCDF to address).
- ii. The need to address cost barriers to “last inch” access. This relates to a multiplicity of challenges that include cost of handsets; limited technology literacy; language; physical disability; illiteracy; age; and packaging of content or provision of access points that are not sensitive to gender differences.
- iii. The need for selected strategic interventions upstream that have a direct causal linkage to bringing down the cost of broadband at the community level. Extending fibre to a local government location, for example, might not fall directly under the ambit of RCDF, but the presence of such fibre makes it easier to connect rural areas. Other examples relate to measures that bring down the overall cost of Internet access that would then have a direct impact on downstream affordability.

All activities in this programme will be largely defined by RCDF and will be based on the assessed gaps from both demand side and supply side studies. There will however be provision for consideration of owned proposals from MDAs, local governments, municipalities, institutions, NGOs, the private sector, and individuals directly involved and willing to invest in rural ICT infrastructure either for development or for commercial purposes.

3.1.2 Content Mediation Programme

This programme is motivated by:

- i. The need to provide technical guidance to MDAs (who will be the originators and owners of the initiative) to put their content online. This may go along with a contribution towards the financial costs entailed based on sustainability assessment.

- ii. Providing technical support and/or contributions to initiatives that seek to address technology literacy and the presentation of content in a way that addresses access and utility barriers due to gender, language, illiteracy, or physical inability.

Activities in this programme will be initiated from outside RCDF by MDAs, NGOs, Institutions, and the Private Sector following guidelines provided by RCDF.

3.1.3 Research and Advocacy Programme

This programme is motivated by:

- i. The need to establish an authoritative baseline and continuously monitor sector performance with respect to the target groups so that consistent and reliable data is always available to enable evidence-based strategy and implementation decisions; and
- ii. The need for research to inform and influence changes in government policy, laws, and regulation to create an environment that enables both market efficiency and RCDF interventions.

Activities in this programme will be initiated by RCDF working in collaboration with the UCC Research Team, but relevant research or study proposals from competent individuals or organizations may also be accepted.

3.2 Programme Targets

3.2.1 The Current Situation

Demand and supply side studies conducted by UCC reveal the following stark realities:

- i. About 19% of the population do not have access to basic telephony services either because there is no connectivity (wired or wireless) where they live, or they cannot afford it.
- ii. About 73% of the population do not have access to broadband. This may be due to the fact that either there is no connectivity where they live, or they cannot afford it.
- iii. The current statistic for Uganda's teledensity is 61.1 (Q3 2016).¹⁹ This policy recognises that the term teledensity as currently defined has lost meaning in Uganda's predominantly mobile environment for two major reasons: First, because people treat mobile phones as a very personal device and the high level of sharing that used to typify wired line phones has disappeared; and second, because a large part of the users have multiple SIM cards, each of which is counted as a line in computing teledensity (It is not unusual even in the low-income brackets to find users with at least two SIM cards in order to exploit cost benefits of calling within the same network, while middle and high-income users will often have more than five SIM cards each). The reality is that SIM cards without the device are useless, and what really matters is the number of connected mobile devices as these represent the possible maximum number of simultaneous users on all the networks. This is recommended as the approach to be used by RCDF as it puts the task at hand in better and more meaningful perspective.

¹⁹ UCC Post, Broadcasting and Telecommunications Market and Industry Report, Q3 (July-September 2016)

3.2.2 Quantified Targets for RCDF III

Based on the definition of UAS along with the target group arguments, we recommend the following stepped targets as given in Table 2 to be achieved by 2021/2022 (This is later than the 2020 target in the policy documents, but is more realistic, taking into account the current situation). It should be noted right from the start that RCDF will have to establish the current baselines, or assume projections from demand and supply side studies (op. cit.) carried out two years ago.

Table 2: Targeted Incremental achievement in broadband penetration

Year	2016	2017	2018	2019	2020	2021	2022
Population Coverage	1%	1%	5%	10%	20%	35%	50%
Rural Districts	?		20%	40%	60%	80%	100%
Subcounty Headquarters	?		20%	40%	60%	80%	100%
Health Centre IVs	?		20%	40%	60%	80%	100%
Secondary Schools	?		20%	40%	60%	80%	100%
Rural Primary Schools	?		10%	20%	30%	40%	50%

? = Base lining required because there is no reliable data

Currently, 70 districts that fall within the categories of unserved or underserved based on the 25% threshold for population coverage as highlighted Appendix A. This Appendix will be revised on an annual basis according to progress in achieving minimum coverage consistent with the annual targets.

3.3 Cost Projections

4 Environmental Risks and Mitigation

The RCDF Unit needs to be cognisant of the following challenges that are environmental risks that will impede the achievement of the Mission. They need to be monitored and addressed on a continuing basis.

4.1 Different Interpretations of the Law

The Uganda Communication Act, 2013, has the sub-activity of UCC as ***“to establish and administer a fund for the development of rural communications and information and communication technology in the country”***. This can be interpreted in two ways. The first one is that “rural” must be the defining adjective. The intent is then to address the access gap in rural communities where the challenges of distance, low density of users, and low average revenue per user (ARPU) combine to disable or severely limit commercial provision of services. The second interpretation looks at *“information and communication technology in the country”* as an additional independent facet that has no limitations in terms of target beneficiaries but is entitled to a portion of RCDF funds to develop ICT anywhere and for any target beneficiaries in the country. It should be noted that the Uganda Communications Act, 2013, stipulates that 50% of the levy must be allocated to rural communications. However the wording in the law about the overall use of the levy remains ambiguous and has led to implementation challenges that point to an urgent need to revise the Act to ensure clarity of meaning as well as institutional arrangements.

4.2 Responsibility for Regulations

The law is not specific about the governance of RCDF. This means it must be handled through regulations that the Minister responsible for ICT is required to lay before Parliament. While this looks acceptable on the face of it, it actually opens the governance and direction of RCDF to short-term political interests as opposed to long-term national development.

4.3 Inconsistent National Policies

It was noted that while UCC tries to create an environment aimed at bringing down the cost of services, other MDAs sometimes introduce measures that counteract the benefits of any such measures. The well-known case is the imposition of an increasing level of taxation on airtime and mobile money services, increasing the affordability gap. A continuing challenge in counteracting this is the absence of authoritative and independent policy research into the impact of different government policies on access and affordability. It is within the strategic interests of RCDF to address this gap.

4.4 Inefficient Markets

The study that is the basis of this policy has demonstrated that there is a de facto duopoly in rural areas that subjects the poorer sectors of the population to costs that are much higher than in the more affluent urban areas. The UCC supply side study also pointed to many existing gaps that push up the cost of services across the board. Expending resources to achieve universality in inefficient markets is a very expensive undertaking. A pre-requisite to cost-efficient interventions is that UCC addresses any market failures or gaps so that the starting point is the greatest penetration and lowest possible costs: this permits RCDF to focus on the real access gap.

UCC should address the following regulatory gaps and bottlenecks and also promote specific interventions in order to accelerate the penetration of broadband:

- i. Speed up the converged regulatory framework by moving towards a simple authorisation regime that facilitates competition and curbs the dominance of a few operators;
- ii. Review the spectrum management framework to stimulate the broadband wireless market including allowing spectrum trading where underused frequency allocations are freed for use by other operators;
- iii. Reduce spectrum licensing fees, especially for rural areas;
- iv. Reduce the technical constraints in the commons approach, such as allowing the power radiation limits to rise in rural areas where interference may not be a major problem;
- v. Abide by transparent plans to improve the amount of spectrum available for broadband Internet access;
- vi. Review the interconnection regime to include capacity based IP interconnection;
- vii. Facilitate rights of way, tower zoning and infrastructure sharing through clear and efficient national policies and procedures;
- viii. Strengthen institutional coordination across the concerned public sector entities in order to meet the demand and supply requirements of the broadband ecosystem;
- ix. Promote and require infrastructure sharing among operators;
- x. Explore avenues to remove or reduce taxation in order to encourage investment, mobile broadband usage and network rollout;
- xi. Stimulate further competition by carrying out diagnosis of the mobile market and curbing dominance of a few operators, especially the current de facto duopoly in rural areas;
- xii. Encourage the rollout of 4G, LTE and other advanced wireless networks; and
- xiii. Encourage expansion of national backbone infrastructure and international bandwidth in order to meet the growing demand for broadband services.

4.5 Political Pressures towards Tactical rather than Strategic Interventions

There is currently an established tradition of political lobbying targeted at achieving short-term and unsustainable interventions (donation of computers to schools, local governments, and health centres; internet connectivity; etc.) that are undertaken without any ownership, sustainability, or long-term impact considerations. There will be a lot of pressure to sustain this. Simply cutting it off would be counter-productive. It can however be gradually choked off through a combination of rapid reduction in the budget for this combined with a requirement for pre-conditions that require both ownership and realistic plans for sustaining and building up any donated resources, along with periodic monitoring.

5 Monitoring and Evaluation

5.1 Objective and Purpose

The key objective of Uganda’s emphasis on ubiquitous access to online resources and services is economic development, both at the individual and national level. The key motivation for sector reform was to attract private sector investment into rolling out ICT infrastructure and services as a commercial opportunity. There was however recognition from the start that there would remain sectors of the population, defined by the real access gap, that would be excluded if reliance was put exclusively on the commercial sector to achieve UAS. RCDF was set up with the objective of ensuring that through targeted interventions, all those in Uganda who would otherwise be excluded can also exploit ICT infrastructure and services for personal economic development, and through that contribute to national economic development.

The purpose of RCDF as spelt in the Mission is

“To ensure, through targeted Interventions, that location, physical inability, gender, and cost are not barriers to access to high capacity broadband for any sector of Uganda’s population”.

This will be achieved through the three strategic programmes identified. These are broken down into the following six high level Key Results Areas (KRAs) of RCDF. The KRAs will provide the basis for continuing evaluation of RCDF performance:

- i. Extending broadband connectivity to all locations in Uganda that would otherwise not be reached through commercial interventions;
- ii. Ensuring that the cost of access devices and the cost of services are not barriers to access;
- iii. Ensuring that limited technology literacy; language; physical disability; illiteracy; age; and packaging of content or provision of access points that are not sensitive to gender differences are not barriers to access;
- iv. Providing support to demand driven initiatives that seek to generate online content beneficial to the RCDF target groups by MDAs, institutions, NGOs, and the private sector;
- v. Establishing an authoritative baseline and continuously monitoring sector performance with respect to the target groups so that consistent and reliable data is always available to enable evidence-based strategy and implementation decisions; and
- vi. Conducting or supporting research to inform and influence changes in government policy, laws, and regulation to create an environment that enables both market efficiency and RCDF interventions.

5.2 The Causal Paths

5.2.1 Broadband Connectivity and Access

The driving policy objective for ensuring that everyone in the country has easy access to affordable and available broadband is economic development, which is premised on the assumption that access to broadband boosts economic growth at all levels.

There has been extensive and continuing research²⁰ to establish whether or not there is any linkage between penetration of broadband and economic development, as well as the mechanisms and factors surrounding this. The key references cited here examine in depth the research undertaken around this thematic topic around the world utilising different econometric models and/or case studies; and approaching the question either from the macro-economic or micro-economic perspective. In many cases, especially when addressing the question in developing countries, paucity of reliable and consistent data creates major challenges and fairly large margins of uncertainty in findings. The consistent finding though is that first, there is a linkage where broadband acts as an enabler; and second, that each 10% increase in broadband penetration leads to a GDP growth ranging from about 0.3% to about 1.3%, tending to be higher for developing than for developed countries largely due to saturation effects (1.19 for developed countries and 1.35 for developing countries for each 10% increase in broadband penetration have been cited several times)²¹. Of particular interest to RCDF is the case of the Philippines cited by Michael Mingos (*op. cit.*) that pointed to an increase in mobile broadband as providing greater GDP gains than fixed broadband, since Uganda is also highly dependent on mobile communications (this is not always the case in all countries as other studies have demonstrated).

Most studies seem to agree that positive gains take effect after broadband penetration traverses a certain threshold, but the exact level remains unclear. Other than the direct gains resulting from jobs in rolling out or providing inputs for broadband, the other major and long term gains are triggered by changes especially in organisational business processes that lead to increased efficiency and productivity; and by innovations that exploit the existence of broadband. By addressing those sectors of the population that are excluded from broadband by various factors, RCDF will therefore be making a major contribution to national development. Since there are multiple development initiatives going on at any time addressing the same sectors of the population, attribution is not possible, but contribution by RCDF to any development outcomes can be argued based on authoritative literature. The best indicators to track would be the United Nations Development Programme (UNDP) Human Development Indicators²², working through the Uganda National Bureau of Statistics (UBOS). Since RCDF resources will be focused at areas or sectors of the population that are much smaller than the national level, this would call for more intensive (and much more expensive) sampling to collect data that is representative at say the district level, and for all commonly marginalised population groupings.

²⁰ See for example:

- i. Kevin A. Hassett and Robert J. Shabiro "The Impact of Broadband and Related Information and Communications Technologies On the American Economy", March 2016
- ii. Michael Mingos, "Exploring the Relationship Between Broadband and Economic Growth", Background Paper for the World Development Report 2016
- iii. Broadband and Sustainable Development: Why Broadband should be Prioritized in the Post-2015 Agenda, A Report on the Special Session of the UN Broadband Commission for Digital Development, January 2014
- iv. "Impact of Broadband on the Economy: Research To date and Policy Issues", ITU Publication in the Broadband Series, 2012
- v. Christine Zhen-Wei Qiang and Carlo M. Rossotto with Kaoru Kimura, "Economic Impacts of Broadband", 2009

²¹ It is fair to note that Michael Mingos, *op. cit.*, has, without affirming either way, raised the question of direction of causality.

²² UNDP Human Development Data, <http://hdr.undp.org/en/data>

5.2.2 Content Mediation

Content mediation refers to initiatives that ensure that all citizens are able to exploit ICT services and applications regardless of their level of education (also associated with literacy), language, physical inability, gender or age-related causes. The presence of broadband alone would not be a benefit to groups in this category without any content mediation; translating it to a form they can understand and use to construct new knowledge. Content mediation starts at the point where someone is connected and is notionally able to access the content. It addresses:

- i. Physical inability, often developing with age: Is the access device suitable for the current physical abilities of the user?
- ii. Technology literacy: does the user know how to use the access device both for basic and more advanced applications?
- iii. Illiteracy: can one read and understand what they see on the screen?
- iv. Language: is the information presented in a language or form one can understand and interpret?
- v. Information literacy: is the user able to sieve through the current mass of online information to not only identify what they need but to also to evaluate it in order to distinguish reliable from unreliable information and then put this to beneficial use?

The challenges around the barriers listed here are multiple and wide-ranging, and it would be wrong and unproductive for UCC to address them through the narrow lens of ICT because that would be far from sufficient. Indeed, they all fall under the mandates of different MDAs, and the RCDF role is therefore to set aside a fund that will be used to contribute to initiatives developed and owned by such MDAs as well as NGOs and the private sector. The availability of such a fund is expected to attract an increasing number of initiatives among the disadvantaged groups around Uganda with an increasing number of players. It is also expected to bring more funds on the table from multiple sources creating a multiplier effect on the funds set aside by RCDF. RCDF will be able to look at indicators for which there is direct attribution: the number of entities that are involved in content mediation initiatives that have partial support from RCDF; the geographical coverage of such initiatives; and the number of people brought into the sustainable access and usage brackets by the initiatives. It will also be possible to argue contribution to overall development outcomes in the localities and communities where there is RCDF supported intervention.

5.2.3 Sector Research and Advocacy

Consistent national policies across all MDAs are critical for any development sector. Unfortunately, the current challenge in Uganda is that gains in one sector are often counteracted by policies in another sector, despite the fact that all work under the same National Development Plan. The specific challenges of taxes on airtime and mobile money transactions for example, counters regulatory initiatives to bring down the costs of these services. This gap is attributed to the absence of evidence based on neutral research that would then be the basis of lobbying and advocacy to bring the policy conflicts in an objective way to the key decision makers so as to cause change. This calls for, first, policy research to provide the evidence about the existence of inconsistencies, and, second, the packaging of findings and persuasion of the key decision makers to align policy. Lobbying and advocacy based on sector research have been known to lead to major policy changes even in Uganda. Specifically, for the telecommunications sector, the sector research report²³ was

²³ Tusubira F. F. and Kaggwa, I: Chapter on Uganda in "Towards an African e-Index: Household and Individual ICT Access and Usage across 10 African countries", Edited by A Gillwald, 2005. ISBN 0 620 35400 3

used as a key reference to push for the full opening up of the sector. The same research provided critical information that supported the decision to invest in National Fibre in order to increase Internet penetration. (This decision also triggered the private sector to embark on massive fibre roll out, one of the greatest benefits of the decision to roll out a national fibre network). The indicators for the success of research, advocacy, and lobbying cannot be determined a priori, but for the two concerns around taxation on airtime and mobile money transactions, a direct causal change and therefore attribution in terms of corresponding jumps in the number of users of volume of usage would point to success.

Similar to policy, regulation has to be examined based on neutral research: UCC is the regulator and requires an external eye to evaluate regulatory effectiveness on a continuing basis. Analysis that provided a background to this report²⁴ for example, points to the existence of a de facto duopoly that is distorting the market and points to regulatory failure. What are the regulatory options to addressing this, and what would the impact be? A UCC study²⁵ has pointed to the gaps in supply side regulation that have resulted in high CAPEX and OPEX for the service providers. This is compounded, as indicated in the same study, by the absence of a national policy and laws to identify and protect critical national infrastructure, regardless of whether it is public or private: associated with this gap are fibre cuts and vandalism that pushes up OPEX for communication networks in Uganda. Addressing regulatory gaps would lead to increased market efficiency that would be evidence by, for example, overall lower tariffs; and consistency of tariffs across all networks (as opposed to the current scenario where the two dominant operators have tariffs that are much higher than the rest²⁶, a business contradiction because the much larger number of users should trigger lower tariffs).

²⁴ Op. cit.

²⁵ Uganda Communications Commission, “A Study into Communication Services and Infrastructure across the Country”, conducted by Knowledge Consulting Ltd, Research ICT Africa, and Intelcon, September 2015

²⁶ See Report 3 in this series

5.3 Logical Framework

This logical framework is intended to guide high level monitoring and evaluation. A blank section with headings is however included to enable the RCDF unit to think through all the activities that need to be carried out in order to achieve the objectives of each Key Result Area (KRA). Most of these will be activities that are carried out every year and will therefore feed, with new incremental targets each year, into the annual work plans. A few might terminate before the end of the 5-year period.

	Intervention Logic	Objectively Verifiable Indicators of Achievement	Sources and Means of Verification	Assumptions
Overall Objective	To contribute to the economic development of Uganda by ensuring that those sectors of the population that would be left out by purely commercial approaches can benefit from the opportunities created by ICT infrastructure and services, and in so doing lead to a higher level of human development	Contribution to economic development can be argued, but is outside the scope of RCDF to carry out the required outcome and impact analyses as that would bring in all interventions that support economic and human development, but opportunities exist for engaging this through the UNDP human development indicators if there are resources to collect data that is representative at the regional or district level.	Uganda National Bureau of Statistics (UBOS) data, including involvement in shaping the surveys	<ul style="list-style-type: none"> a) ICT penetration levels in Uganda will, in a comparatively short time, achieve the critical penetration levels to enable significant positive impact on development; b) Jobs in rolling out or providing inputs for broadband, organisational business processes that lead to increased efficiency and productivity, and innovations that exploit the existence of broadband will kick in to boost GDP.
Specific Objective	To ensure, through targeted Interventions, that location, physical inability, gender, and cost are not barriers to access to high capacity broadband for any sector	<ul style="list-style-type: none"> a) Annual increase in national coverage of broadband connectivity (both geographical area and population coverage) b) Annual increase in percentages of 	<ul style="list-style-type: none"> Annual collection of supply side data from service providers reports Annual targeted demand 	<ul style="list-style-type: none"> a) The environmental risks associated with policy, regulatory gaps, and market failures are addressed by UCC or

	Intervention Logic	Objectively Verifiable Indicators of Achievement	Sources and Means of Verification	Assumptions
	of Uganda’s population	<p>people in the different RCDF target categories that have access to broadband.</p> <p>c) Minimum always on bandwidth capacity available to those who have broadband connectivity</p> <p>d) Cost of broadband as a percentage of GNI per capita</p>	side surveys	<p>MICT</p> <p>a) RCDF develops and implements (or supports) effective interventions aimed at addressing the real access gap</p> <p>b) RCDF sustains a strategic rather than a tactical outlook during the planning period</p> <p>c) A stable economic environment</p>
Expected Results	<p>i. Broadband connectivity extended to all locations in Uganda that would otherwise have not been reached through commercial interventions;</p>	<p>i. Annual list of new districts/sub-counties or other locations added to those that have broadband connectivity</p> <p>ii. Annual increases in broadband infrastructure rollout (3G/+ mobile BTS, fibre, etc.)</p>	<p>Service providers’ reports and RCDF annual reports combined with periodic demand side surveys</p> <p>Market surveys; UBOS data;</p>	<p>a) The level as provided for in the law will be released to RCDF, so that, combined with other sources of funding, there are sufficient resources for the planned roll out</p> <p>b) PPDA will permit a suitable procurement procedure, e.g. negotiated procedure with competition or competitive dialogue²⁷, for rollout procurement for the</p>

²⁷ See for example <http://bit.ly/2lfxAAO>. There are other reference under EUC and European governments. Conformity with the Public Procurement Disposal of Public Assets Authority (PPDA) or special clearance may be needed.

	Intervention Logic	Objectively Verifiable Indicators of Achievement	Sources and Means of Verification	Assumptions
				targeted areas
	ii. Cost of access devices and the cost of service are not barriers to access;	iii. Cost of common access devices (smart phones, laptops, etc.) as a percentage of GNI per capita iv. Number of common access devices connected to different provider networks v. Cost of access to broadband as percentage of GNI per capita vi. Total international bandwidth available in the country	Service providers' reports and RCDF annual reports combined with periodic demand side surveys Market surveys; UBOS data	Efforts to align contradictory national policies will be successful, with specific reference to taxation related to ICT devices and services
	iii. Limited technology literacy; language; physical disability; illiteracy; age; and packaging of content or provision of access points that are not sensitive to gender differences are not barriers to access	vii. Increase in average time on line within each group that can be attributed to interventions; viii. Increase in average monthly expenditure on data/data packages within each group	Service providers' reports and RCDF annual reports combined with periodic demand side surveys Market surveys; UBOS data	
	iv. There is a growing quantity of online content beneficial to the RCDF target groups by MDAs, institutions, NGOs, and the private sector;	ix. Size (number of web pages) and number of rich files per MDA web domain/subdomains including rich files (e.g. PDF & WORD file types) x. Number of external networks (subnets) originating backlinks to MDA webpages xi. Number of visitors/hits to MDA website and average duration of visits (disaggregated by target group where possible) xii. Number of registered domains under <i>dot UG</i> (.UG)	Web analytics data (see Webometrics example) ²⁸ and demand side surveys Domain data from local domain registrars and NITA-U	MDAs will lead the initiatives to place their content and services online

²⁸ Webometrics uses metrics similar metrics to rank online presence of Universities, <http://www.webometrics.info>

	Intervention Logic	Objectively Verifiable Indicators of Achievement	Sources and Means of Verification	Assumptions
	v. There is an authoritative baseline and continuous monitoring of sector performance with respect to the target groups so that consistent and reliable data is always available to enable evidence-based strategy and implementation decisions;	xiii. Comprehensiveness and regularity of published data xiv. Time lag between publication of data online and the period to which the data refers	RCDF online database	
	vi. There is on-going research that has informed and influenced changes in government policy, laws, and regulation to create an environment that enables both market efficiency and RCDF interventions.	xv. Documentation of policies, regulations, or strategies across government that have been changed as a direct result of RCDF supported research xvi. Improved sector performance based on objective research	RCDF Annual Reports and Sector Performance studies	
Results Area	Sub-Activities that will be carried to achieve the desired result	Means of implementation of each sub-activity	Sources of Information on Progress	Preconditions (within RCDF and external)
Extending broadband connectivity to all locations in Uganda that would otherwise not be reached through commercial interventions;	(List all sub-activities as conceived by RCDF)	(Who or which entity will implement the sub-activity?)		
Ensuring that the cost of access devices and the cost of service are not barriers to access;				
Ensuring that limited technology				

	Intervention Logic	Objectively Verifiable Indicators of Achievement	Sources and Means of Verification	Assumptions
literacy; language; physical disability; illiteracy; age; and packaging of content or provision of access points that are not sensitive to gender differences are not barriers to access				
Providing support to initiatives that seek to generate online content beneficial to the RCDF target groups by MDAs, institutions, NGOs, and the private sector;				
Establishing an authoritative baseline and continuously monitoring sector performance with respect to the target groups so that consistent and reliable data is always available to enable evidence-based strategy and implementation decisions;				

Appendix A Area and Population Coverage for 3G by District

Table is sorted in ascending order based on 3G Population Coverage (right-most column) and indicates that 79 Districts were below the 25% threshold of population coverage. Analysis is from on UCC Study into Communication Services and Infrastructure across the Country, based on data collected in the second half of 2015. <http://bit.ly/2eCrbNB>

Region	District	3G Area Coverage (%)	3G Population Coverage (%)
CENTRAL	BUVUMA	0%	0%
CENTRAL	GOMBA	0%	0%
EASTERN	BUKWO	0%	0%
EASTERN	BUYENDE	0%	0%
EASTERN	KALIRO	0%	0%
EASTERN	KIBUKU	0%	0%
EASTERN	KWEEN	0%	0%
EASTERN	LUUKA	0%	0%
EASTERN	NAMAYINGO	0%	0%
NORTHERN	ALEBTONG	0%	0%
NORTHERN	KOLE	0%	0%
NORTHERN	NAPAK	0%	0%
NORTHERN	OTUKE	0%	0%
WESTERN	MITOOMA	0%	0%
WESTERN	NTOROKO	0%	0%
EASTERN	BULAMBULI	0%	0%
EASTERN	KABERAMAIDO	0%	0%
NORTHERN	KAABONG	4%	2%
NORTHERN	OYAM	3%	2%
CENTRAL	KYANKWANZI	0%	2%
NORTHERN	PADER	1%	3%
EASTERN	NAMUTUMBA	2%	3%
NORTHERN	AMUDAT	2%	3%
EASTERN	MAYUGE	1%	4%
NORTHERN	LAMWO	1%	4%
WESTERN	KYENJOJO	2%	5%
NORTHERN	APAC	1%	5%
NORTHERN	NAKAPIRIPIT	5%	5%
NORTHERN	ABIM	2%	6%
EASTERN	KAMULI	3%	6%
CENTRAL	MUBENDE	1%	6%
WESTERN	KANUNGU	12%	7%

CENTRAL	NAKASEKE	2%	7%
NORTHERN	AMOLATAR	2%	7%
EASTERN	SERERE	2%	7%
CENTRAL	SSEMBABULE	4%	8%
NORTHERN	MARACHA	9%	8%
WESTERN	RUKUNGIRI	3%	9%
CENTRAL	KALANGALA	1%	9%
WESTERN	KIRUHURA	8%	9%
EASTERN	BUTALEJA	9%	9%
WESTERN	KAMWENGE	9%	10%
CENTRAL	KAYUNGA	2%	10%
NORTHERN	KOTIDO	1%	10%
EASTERN	PALLISA	4%	10%
WESTERN	ISINGIRO	12%	10%
WESTERN	SHEEMA	11%	10%
WESTERN	KIBAALE	6%	11%
NORTHERN	MOYO	2%	11%
CENTRAL	BUTAMBALA	9%	11%
NORTHERN	DOKOLO	3%	11%
WESTERN	NTUNGAMO	10%	12%
CENTRAL	RAKAI	6%	12%
CENTRAL	KIBOGA	2%	12%
NORTHERN	AGAGO	7%	13%
EASTERN	AMURIA	8%	13%
WESTERN	BUHWEJU	14%	13%
EASTERN	BUDAKA	10%	14%
NORTHERN	NWOYA	9%	14%
EASTERN	KUMI	8%	14%
EASTERN	NGORA	5%	15%
WESTERN	IBANDA	13%	16%
WESTERN	KYEGEGWA	11%	16%
EASTERN	SIRONKO	11%	16%
WESTERN	BULIISA	7%	16%
NORTHERN	AMURU	9%	16%
EASTERN	MANAFWA	21%	16%
CENTRAL	NAKASONGOLA	6%	16%
WESTERN	KIRYANDONGO	8%	18%
NORTHERN	ADJUMANI	5%	18%
NORTHERN	MOROTO	6%	18%
NORTHERN	YUMBE	8%	18%
NORTHERN	ZOMBO	4%	19%
EASTERN	KATAKWI	8%	19%
WESTERN	KISORO	8%	20%

CENTRAL	MITYANA	10%	20%
CENTRAL	LYANTONDE	7%	20%
EASTERN	KAPCHORWA	12%	22%
EASTERN	BUKEDEA	15%	23%
NORTHERN	KITGUM	1%	26%
EASTERN	SOROTI	5%	26%
WESTERN	MBARARA	10%	27%
EASTERN	IGANGA	7%	27%
EASTERN	BUGIRI	19%	27%
WESTERN	BUSHENYI	15%	28%
WESTERN	HOIMA	18%	28%
EASTERN	TORORO	18%	29%
NORTHERN	ARUA	8%	29%
WESTERN	MASINDI	12%	29%
NORTHERN	NEBBI	19%	30%
CENTRAL	MASAKA	5%	31%
WESTERN	KASESE	7%	31%
NORTHERN	LIRA	6%	32%
WESTERN	KABALE	25%	34%
CENTRAL	LWENGO	34%	35%
CENTRAL	MPIGI	19%	36%
EASTERN	BUSIA	19%	37%
CENTRAL	KALUNGU	28%	37%
CENTRAL	BUKOMANSIMBI	34%	39%
WESTERN	BUNDIBUGYO	23%	39%
NORTHERN	KOBOKO	13%	41%
WESTERN	KABAROLE	25%	42%
NORTHERN	GULU	3%	44%
WESTERN	RUBIRIZI	13%	45%
EASTERN	BUDUDA	27%	48%
CENTRAL	LUWERO	25%	48%
CENTRAL	BUIKWE	24%	51%
EASTERN	JINJA	36%	62%
CENTRAL	MUKONO	23%	64%
EASTERN	MPALE	69%	75%
CENTRAL	WAKISO	50%	88%
CENTRAL	KAMPALA	100%	100%