COMMUNICATIONS AUTHORITY OF KENYA

BROADCASTING REPORT

BASELINE SURVEY FOR BROADCASTING SERVICES IN KENYA

MARCH 2022

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List of Abbreviations

BSD	:	Broadcasting Signal Distributor
CA	:	Communication Authority of Kenya
CAPEX:		Capital Expenditure
CEO	:	Chief Executive Officer
CS	:	Cabinet Secretary
DEM	:	Digital Evaluation Modes
DTAB	:	Digital Terrestrial Audio Broadcasting
DTT	:	Digital Terrestrial Television
FGD	:	Focus Group Discussions
FTA	:	Free to Air
GIS	:	Geographical Information Systems
ICT	:	Information Communication Technology
ICTA	:	The Information and Communication Technology Authority
ICTs	-	Information and Communication Technologies
IFRS	:	International Financial Reporting Standards
IoT	:	Internet of things
ITU	:	International Telecommunication Union
JAWS	:	Job Access With Speech
KICA	:	Kenya Information Communications Amendment Act
KICD	:	Kenya Institute of Curriculum Development
KICR	:	Kenya Information and Communications Regulations
KII	:	Key Informant Interviews
MDA	:	Ministries Departments and Agencies
MOICT:		Ministry of Information, Communications and Technology
NCPWD:		National Council for Persons with Disabilities
NCS	:	National Communications Secretariat
NGO	:	Non-Governmental Organization
OPEX	:	Operational Expenses relating directly to provision of service
ORE:		Operational Readiness for e-commerce
PPP	:	Public Private Partnership
PPV	:	Pay Per View
PSC	:	Project Steering Committee
PWDs:		Persons Living with Disabilities
QoS	:	Quality of Service
RFID	:	Radio-Frequency Identification
SDG	:	Sustainable Development Goals
SPIL	:	Sigmund Peak International Limited
SPSS	:	Statistical Package for the Social Sciences
ToR	:	Terms of Reference
TV	:	Television
USAC	:	Universal Service Advisory Council
USF	:	Universal Service Fund
USO	-	Universal Service Obligation

Glossary

Broadcasting: Under the Kenya Information and Communications Act, 1998 **"broadcasting"** is defined as the unidirectional conveyance of sounds or television programmes, whether encrypted or not by radio or other means of telecommunications, for reception by the public;

Broadcasting service: According to the Act**, "broadcasting service"** is any service which consists of the broadcasting of television or sound broadcasting programs to the public, sections of the public or subscribers to such a service.

Programme: The Act also defines a **"programme"** as sound, vision or a combination of both, intended to inform, educate or entertain, but does not include text or data.

Authorized entity. According to the Copyright Act 2001, an "**authorized entity**" as an entity that is authorized or recognized by the government to provide education, instructional training, adaptive reading or information access to beneficiary persons on a non-profit basis and includes a government institution or non-profit organization that provides the same services to beneficiary persons as one of its primary activities or institutional obligations

"**Beneficiary person**" means a person who —

a) is blind;
b) has a visual impairment or a perceptual or reading disability which cannot be improved to give visual function substantially equivalent to that of a person who has no such impairment or disability and so is unable to read printed works to substantially the same degree as a person without an impairment or disability; or
c) is otherwise unable, through physical disability, to hold or manipulate a book or to focus or move the eyes to the extent that would be normally acceptable for reading, regardless of any other disabilities

Regulatory Impact Analysis (RIA) is defined at the OECD level as "a systemic approach to critically assessing the positive and negative effects of proposed and existing regulations and non-regulatory alternatives".

EXECUTIVE SUMMARY

Broadcasting services are necessary for the socio-economic development of society. However, there still exist geographical areas and population that have not yet been covered by these services. Further, even where there is coverage, barriers to access exist including affordability and limited access devices.

Purpose of the Survey

This survey was commissioned to assess the status of the broadcasting sector based on indicators such as inclusion; coverage, access and challenges experienced by both service provides and consumers and propose strategies to ensure universal broadcasting services to all citizens. The objectives of this baseline survey thus were to:

(i) Identify gaps in service coverage and access to Broadcasting services; there are 1137 out of 8842 sub-locations without DTT coverage and 1240 out of 8842 without FM radio coverage
(ii) Identify challenges faced by Broadcasting operators in rolling out services
(iii) Identify the challenges that users face in accessing services including but not limited to Broadcasting (Television and Radio)
(iv) Formulate strategies to bridge the identified gaps (service provider, consumer perspectives and regulatory); to bridge the coverage gaps 1137 for DTT and 1240 for FM radio
(v) Provide training on financing models and Geographical Information Systems (GIS)

Key Findings

Based on the survey, the findings on supply and demand sides of broadcasting services are as follows:

Supply side

(1) Coverage of broadcasting services

(a) Existing broadcast coverage

i. Public, commercial and community broadcasters are providing services in the country.
ii. The total population coverage of DTT and FM radio is 91.21% (CA, June 2021) and 87% (GeoPOLL March 2021) respectively.
iii. The populations with no or least coverage is in sub-locations found in Northern and Eastern parts of the country.
iv. FM radio frequencies are fully allocated in urban areas especially Nairobi and Mombasa though this is not the case in underserved areas in rural areas

(b) Gaps in broadcast service coverage

The gaps that were identified are as follows:

i. No DTT signal coverage in 1137 sub-location and 1240 sub-locations for FM signal such as in Mandera and large parts of Turkana, Wajir, Marsabit, and Marsabit Counties.
ii. Limited coverage due to low transmitter power such as in Turkana (Lodwar and Lokichogio sites), Marsabit (Marsabit Town), Samburu (Maralal Town), Wajir (Wajir Town) and Tana River (Hola Town).

iii. Poor signal in coverage areas such as in Busia, Siaya, Laikipia, Machakos, Embu and Kwale for FM radio and Nandi, Trans Nzoia, Busia, Vihiga, Bomet, Makueni, Taita Taveta, Kitui, and Tana River for TV.
iv. Lack of broadcast studios particularly in rural areas

The gaps on other aspects of broadcasting services including using on content and programming, awareness and policy and regulatory gaps are as follows:

(2) Content and programming

Content. This survey established that the production cost of local content is high thus making it expensive for broadcasters to acquire. According to this survey,–the cost of production of content is high (between Kshs. 600,000 and 800,000 per episode) and significantly higher than Kshs. 30,000 that broadcasters pay for foreign content such as Mexican soaps. There are also disparate shooting venue levies across counties. Further, limitation on availability of premium sporting content including through exclusive supply arrangements, aggregation of content into bundled wholesale content rights and acquisition costs have affected participation in the acquisition of content and thereby restricted competition in the downstream market. As a consequence, signal piracy and illegal IP simulcasting have proffered a haven for access. Consequently, there is need to:

(i) Promote and support production of relevant local content including onboarding independent content creators and alternative broadcasting services such as online streaming under the regulatory space.

(ii) Promote innovation in content creation to address developmental needs in line with Vision 2030 and the national development agenda such as the Big 4 Agenda - food security and nutrition, health, housing, manufacturing

(iii) Strengthen the enforcement of intellectual property in copyright classification of content, and regulate streaming platforms, and online content e.g., Netflix,

Programming. According to this survey, there is need to:

i. Regularly increase the percentage of programs for special interest groups including PWDs, marginalized and minority population.

ii. Enforce programming standards to respond to the needs of the audience since the survey found that there are media houses that broadcast some content at “inappropriate” times of the day/night.

(3) Human Capacity

With regard for human capacity, there is need to build capacity for community broadcasters through awareness creation to enable them understand the role of community broadcasting so as to clearly delimit their role vis-à-vis that of commercial broadcasters. Further,

(4) Policy, Legislation and Regulation

Overall, the policy, legal and regulatory environment is enabling. Enforcement of existing legal and regulatory frameworks however requires continuous attention. Furthermore, ensuring that emerging broadcasting services do not operate in unregulated spaces is another priority area which continues to pose a significant challenge to existing policies, legislation and regulations as these grey areas are usually exploited to the detriment of incumbents and consumers. There is also need to continuously build capacity on best practice regulation processes at CA in view of the dynamic broadcasting sub-sector.

(5) Challenges faced by service providers

In summary, the challenges faced by broadcasting service providers are:

i. Fully allocated FM spectrum in some areas such as in Nairobi and Mombasa hence the need to introduce digital audio broadcasting to avail resources to expand service offering

ii. Economic unviability of unserved areas

iii. Lack of support infrastructure in unserved areas including power supply, roads and sufficient security

iv. High costs of compliance with regulatory requirements such as for station logging, profanity delay and band pass equipment

Demand side

With the proliferation of data services and increase in smart mobile telephony, demand for on-the-go broadcasting services has been on the rise. Availability and accessibility have thus increased especially in the urban areas though affordability remains a challenge in both rural and urban areas. The need for consumer protection has also been noted as an area requiring continuous setting of standards and enforcement to respond to the dynamism that continues to underscore an ever-evolving sector. However, the following are the demand side gaps which constitute challenges that users of broadcasting services:

- Access to broadcast service
- Content and programming
- Quality of service
- Devices for general public and for persons with disabilities
- Consumer protection
- Affordability

The following is an explanation of challenges faced by consumers of broadcasting services:

(1) Access to service

Radio is more accessible broadcast service than TV in both in both rural and urban areas. TV broadcast is mostly accessed through digital TV sets and Smart devices, a trend that is attributed to the transition from analogue to digital broadcasting. Radio broadcast services are accessed through radio, satellite boxes, mobile phones, and internet. The use of analogue TV sets (with set-top boxes) was reported more in rural

areas compared to urban areas where use of smart TV was high. Broadcast service is also accessible via online streaming. This notwithstanding, northern and eastern parts of Kenya have limited or no access to radio and TV services.

(2) Quality of *service*

The quality of TV and radio broadcast signals was found to be more satisfactory in the urban areas (71.2%) than in rural areas (61.3%). The same trend applies to quality of radio service with quality being better in urban areas (78.4%) compared to rural areas (68.1%). Overall, FM radio service quality is better than that of TV service. However, there are quality gaps (rural - TV: 38.7%; radio: 31.9%; urban - TV: 28.8%; radio: 21.6%)

(3) Content and programming

Content. Information and news, and general entertainment were the most viewed programmes. Kiswahili was the most used and as well as the most preferred language for TV broadcasting by viewers followed by English. There is sign language for news and programmes of national importance on live coverage though other formats are needed due to the various forms of disability across populations. However, some content was considered inappropriate and offensive to the audience thus requiring regulatory intervention.

Furthermore, though policies and legislation for inclusion of persons with disabilities to facilitate their access to services are in place, there still exist bottlenecks in the realization of this objective. Content creators avoid conversion and packaging of their content to PWDs accessible formats due to high production costs of original content and lack of incentives to both produce original content and convert them to accessible formats for PWDs.

Improvements are needed on content. In particular, there is need to increase content, its quality, and format, and to have it in languages that are preferred by the audience. The content needs to be aligned with national development imperatives contained in Vision 2030, Big 4 agenda and other priorities including national values and ethics. In addition, there is need to promote production of content that has socio-economic impact including food production, education, technology innovation and manufacturing, environment protection, water and sanitation, health, peace-building and security among others.

Programming. There is need to improve programming to avoid broadcasting certain content at unsuitable times such as during watershed period and to have more broadcasts in local/vernacular language (current broadcast of local/ vernacular: 13.1%; preferred broadcast: 19.9%). There is thus a gap with regard to programming language

(4) Devices to access broadcast services

Access devices for PWDs are expensive for majority of the PWDs population even where government incentives and subsidies are provided. These include auditory access devices such as recording devices, auditory books, electronic dictionary with speech, screen reading software, and speech recognition software. Further, most of the devices are not locally manufactured and there is limited awareness of existence and utility of these devices. Only sign language is deployed for news and programmes of national

importance on live coverage. People with speech and hearing, impairment also need assistive listening devices which amplify sound; they need hearing aids or cochlea implants to buoy their access to broadcasting services.

Further, visually impaired persons need inbuilt narrators in the TV content. There is therefore need to provide PWDs access enabling equipment and devices that are compatible and usable by the distinct categories of the PWD population such as those that support closed captioning to allow people with hearing problems to watch movies, television programs, and other digital media; and narrators to support visually impaired persons.

(5) Consumer protection
There are consumer concerns regarding content; these include the use of "vulgar" language in broadcasts and inappropriate programming. This requires appropriate scheduling of broadcasts to ensure that rights of all categories of audience are respected.

(6) Smart devices are expensive as well as subscription fees for pay broadcast services

Strategies to improve broadcasting services
The following are the proposals arising from the findings of this survey which are aimed at improving the coverage and access to broadcasting services:

Supply side

(1) Coverage

- *Introduce digital radio to supplement FM radio*. The adoption of digital audio broadcasting will create more channels for use by more broadcasters in urban and some rural areas where FM spectrum is currently fully allocated. Competition is currently adequate, however there is opportunity to introduce more service providers to address niche areas that are not currently addressed by existing service providers' offerings. The socio-economic development issues that need specific broadcasting services include education, health, national values, environment protection and climate change among other areas.
- Deploy transmitters for both radio and TV in the unserved/underserved areas including in North Western and Eastern parts of Kenya areas. The areas proposed include Kakuma, Loyangalani, Moyale, Mandera and El Wak which are unserved currently (see full list of the underserved/unserved areas in Annex XIV). This will enable the FTA providers to offer coverage to these areas.
- In the poor or no signal areas of the served areas resulting from topographical interference, it is recommended that low power transmitters be deployed to address the coverage deficits
- *Competition and sustainability of existing broadcasters.* From the survey, no major competition issues were noted save for signal interference that affects quality of service. Taking into account consumer preferences and market developments, one area that may require regulatory strengthening is over the top (OTT) services that may have adverse effects on competition. The competition may further be increased through innovation by service providers because there is insufficient differentiation between media houses and a tendency to adopt a 'me

too' posture with similar products. Consequently, there is room for more innovative broadcasters to target niches that are aligned with socio-economic imperatives and national development goals such as agriculture, health, manufacturing and housing; and national values.

- Increase coverage area by upgrading the transmitter power in locations which currently have low power transmitter

(2) Content and programming

- Incentivize local content providers including through seed funding to promote local content production.
- Promote production content in alternative accessible formats for PWDs and special interest groups including captions, subtitles, sign language, audio, narrators and braille. regularly review the programming code to ensure protection of consumers including minors for example through mandating age verification systems for broadcasters, user-generated content creators and internet service providers (ISPs) (filtering software).

(3) Capacity building

- Promote professionalism in the broadcast sector including pursuing of qualifications that would enable practitioners to meet accreditation requirements
- Promote and support content development for both mainstream broadcasters and community broadcasters in terms of capacity building and seed funding for creation, formatting and marketing.
- Create awareness to PWDs on the available access devices and software that meet their broadcast service access needs.

(4) Innovation for sustainability of existing broadcasters

- The competition needs to be further increased through innovation to address the "me too" tendency prevalent across media outlets and thereby increase consumer choice.

(5) Policy, Legislation and Regulation

The following are policy, legal and regulatory proposals to improve the broadcasting sector in Kenya:

Legislation

- Amend Section 2 of Kenya Information and Communications Act, 1998 to include independent content providers, emerging service offerings and redefine basic services in the context of present user perspectives and technological trends.
- Enact regulations under KICA 1998 consistent with provisions of Section 21 of the Statutory Instruments Act, 2013 and emerging sector demands.

Enforcement

- Enhance enforcement of existing legislation and regulations by collaborating with relevant agencies including on data protection, children rights, consumer protection and cyber-security

Universal Service Fund

- Enhance the administration and deployment of universal service funds to support the extension of services to unserved and underserved areas; availability, access and accessibility to services by special interest groups including PWDs, aging population, minority ethnic groups and children including by supporting relevant content creation.

Regulatory Impact Analysis

- The findings of the study showed that there is no consensus on the application of Regulatory Impact Analysis (RIA) in execution of regulatory functions under the Act. RIA is defined at the OECD level as "a systemic approach to critically assessing the positive and negative effects of proposed and existing regulations and non-regulatory alternatives".
- There is thus need to streamline internal regulation processes to ensure uniformity in execution of regulatory mandate including by adopting RIA systems as provided under Sections 6-8 of the Statutory Instruments Act.

Child online protection

- Include licensing requirements that promote use of acceptable safety measures on broadcast platforms
- Obligate licensees to undertake child-rights due diligence
- Create awareness to children on digital literacy and online safety skills
- Adopt complementary measures in protection of children such as establishing child-sensitive counselling, reporting and complaint mechanisms and age-specific and need-based responses.
- Regulate against illegal child-targeted marketing

Intellectual Property Rights

- Support efforts to protect intellectual property rights including through publicizing and raising awareness on piracy (signal, and software) and digital file sharing;
- Regularly review fines or sanctions for licensed operators and service providers that permit hosting of illegal file transfer services;
- Require disclosures of traffic data in instances of alleged abuse; and
- Collaborate on regulations regarding user-created/originated content, new forms of sampling, adaptation, fair use and liability.

Inter-agency collaboration

- Foster inter-agency collaboration to ensure efficiency in monitoring, enforcement (Section 83A Kenya Information and Communications Act, 1998) and overall execution of regulatory mandate in accordance with Section 5(3) of the Act. Kenya Copyright Board (Section 5(c) and (e) Copyright Act, 2001), Media Council (Section 6(1)(d)(e)(i) and (l)), National Computer and Cybercrimes Co-ordination Committee (Sections 6(1)(d)(f)(g) and (j) Computer Misuse and Cybercrimes Act, 2018).
- Establish a multi-stakeholder unit to conduct regular research on cross-policy regulation of broadcasting and telecommunications sub-sector.

Media regulation in the age of convergence

The rise of digital radio and television and the internet has confounded traditional regulation of "radio" and "television" broadcasting. There is therefore need for proactive regulation and regulatory incentives in a converged media sector. In particular, it is

proposed to roll out interventions for regulation in the era of media convergence and globalization including on next generation networks, social media; spectrum, copyright and media subsidies; service/product definition, market boundaries and regulatory oversight; including: self-regulation and non-market-based policy solutions.

(6) Coverage Deployment Model

The major barrier to coverage of broadcast services in the rural areas is lack of or limited access to the broadcast signal. Consequently, it is proposed that signal distributors deploy multi-tenant transmitter sites in the remote rural un/under-served areas and sell capacity to several broadcasters. For the urban areas, studios with open nondiscriminatory access by broadcasters are proposed to enable the production of local content as well as provide broadcast studios to broadcasters on need basis.

(7) Financing options (rural vs urban)

For the remote unserved areas and economically unviable areas, the Universal Service Fund subsidy is proposed to be disbursed to fund the set-up of transmitter sites and studios. The urban underserved areas can be financed by broadcasters because these areas are more economically viable than the rural areas but be only subsidized where the situation justifies such subsidy.

Demand side

(1) Devices

- Consider tax rebates on broadcasting equipment such as transmitters, and profanity delay equipment to ensure their affordability for community and public/private broadcasters
- Reduce tax on import of digital TV devices to increase uptake of TV broadcast services in areas where there is service coverage
- Promote local production of affordable broadcast access devices for the general public and for PWDs

(2) Access by the general population

Promote availability of affordable TV and radio access devices for all categories of the population; including through local assembly of access devices and creation of awareness of services, consumer rights and obligations

(3) Access by PWDs

- Mainstream interventions that promote availability, access and accessibility by PWDs e.g. Sensitizing and training of staff on service provision to persons with disabilities; introducing license requiremnts for structures and systems that ensure persons with disabilities access services
- Support local manufacturing of appropriate user devices including Smart TVs, Smart radios, and other auditory, visual and speech assistive devices and software development
- Support the acquisition of software and accessories required to avail broadcast services to PWDs
- Monitor and regularly evaluate the implementation of interventions on access to broadcast services by PWDs.

(4) Quality of service

- Conduct monitor and enforce quality of service requirements
- Conduct customer satisfaction survey

(5) Collaboration in the broadcasting sub-sector

Enhance collaboration among all broadcast sub-sector value chain to enhance the performance of the sector with respect to coverage, access, content, programming, professionalism, new technologies, and contribution to national development

Lastly, in furtherance of the overarching objectives of the broadcasting sector, there is need to onboard more providers to extend coverage to unserved and underserved areas, diversifying revenue streams of the broadcast sub-sector service providers, and expanding the regulatory space to include emerging service providers, leveraging on technologies such as Next Generation Networks, 5G, AI and IOT to enhance access and user experience. There is also need to enhance the protection of intellectual property rights and ensure accessibility, security and affordability for and by all including through targeted enabling interventions for persons with disabilities.

(6) *Monitoring and Evaluation of the action plan.* The proposed interventions should be monitored quarterly and evaluated annually to draw lessons for further improvement of broadcast services coverage across the country.

Budget for Five-Year Action Plan

The proposed budget is KES 5.4 billion comprising KES 5.1 billion for infrastructure, facilities and operational (OPEX) subsidies for service to the unserved/ under-served areas; and KES 300 million to support research, content development, PWD devices and creation of awareness. This budget covers the Five-Year Action Plan period.

1. INTRODUCTION

Until 1990, Voice of Kenya (VOK) was the only broadcasting service provider. In 1990, Kenya Television Network (KTN) was licensed and started offering broadcasting services. Later, in 1995, Capital FM was also licensed and started offering radio service. Since then, there has been liberalisation of the market airwaves and consequent increase of broadcasting services providers. In 2015/2016, the transition from analog (14 broadcasters) to digital TV was effected. This resulted in an increase in the number of television broadcasters from 14 to 135 especially in the urban areas.
The broadcasting sub-sector has evolved from monopoly through partial liberalisation to full liberalisation with the aim of making the sector responsive to the needs of the population with regard to coverage, access and quality of service. However, gaps still exist hence the need for deliberate intervention by the government through the use of the universal fund.

One of the mandates of the Communications Authority is to ensure provision of all ICT services on a universal service basis across the country. Over the years, there has been significant emphasis on sectors such as telecommunications and mobile telephony. However, there remains a significant proportion of the territory where broadcasting services are still not available. Broadcasting which is mainly delivered through Radio and TV, is a medium for entertainment, information dissemination and education. It is imperative that the broadcasting sub-sector services are widely available, accessible, relevant and affordable to the population for them to positively impact on the development of society.

In furtherance of the overarching objective of the sub-sector, there is need to support efforts to extend coverage to unserved and underserved areas, diversifying revenue streams of the broadcast subsector service providers, and expanding the regulatory space to include emerging players that leveraging technologies such as 5G, AI and IOT. There is also need to protect intellectual property rights and ensure accessibility, security and affordability for and by all including through enabling interventions for persons with disabilities. This survey assessed the viability of existing service provisions, infrastructure, legal frameworks and capacities based, among others, on user and service provider perspectives, and the fast-changing operational environment.

1.1 Background

This study was commissioned to identify gaps in coverage and challenges faced by service providers in roll out of broadcasting services, to identify user challenges in terms of access and affordability; and to, identify systems and technologies for inclusion of persons with disabilities and propose strategies for improvement of provision of broadcasting services including infrastructure, technical expertise, content creation and receiver services for PWDs. The scope also included proposition of a financing model to guide implementation of subsidy interventions necessary to address the coverage objectives, and GIS mapping of broadcast signal coverage

1.1.1 Overview of Broadcasting

The broadcasting landscape has undergone significant change in the past two decades including the change from analog to digital modes of delivery. In most countries, there

exist mixed broadcasting models, with the co-existence of state or public service channels alongside fully commercial broadcasting enterprises. Private broadcasting has proliferated both nationally and internationally through the use of cable and satellite transmission systems. It is becoming increasingly evident that pursuit of profit underpinning, commercial broadcasting has often diverted the media from its public interest focus towards pure entertainment. However, nowhere have they made public service broadcasting obsolete, and the dual systems often provide the best media ecology.

1.1.1.1 Characteristics of broadcasting environment

The current broadcasting environment is characterized by the apparent irony of an explosion in number of channels available to listeners and viewers and yet a general decline in the quality, and even diversity, of programme content. This context provides a natural justification for, almost promotion of, public service broadcasting. World over, public broadcasting finds itself on the defensive. The reasons for this vary and include ongoing and new forms of government interference, a crisis of public confidence, a dwindling funding base, an aggressive and highly competitive commercial broadcasting sector, and a neo-liberal environment of hostility to all things public.

On the global scale broadcasting technology has advanced to integrated digital TV (iDTV) and Digital Terrestrial Audio broadcasting (DTAB). From the ITU report on "Trends in broadcasting: An overview of development report (February 2013)" the trend was mainly on analog to digital migration. However, more developments have taken place including emergence of newer delivery modes of broadcasting services over "the cloud" and the emergence of iDTV among other innovations.In line with global developments, Kenya transitioned from analog TV to DTT in the period 2015/2016. Further, most of Europe has moved to DTAB while other countries, including Kenya, are still adopting various broadcasting technologies.

In Kenya, both radio and television outlets are accessible to nearly all of the people of Kenya, and are a powerful medium for influencing culture, beliefs and values as well as a tool for economic growth and development. In view of this, the Communications Authority (CA), carries out monitoring of television and radio broadcasters' programmes in order to assess the level of broadcasters' compliance with the regulatory requirements.

The current broadcasting service market comprises public, commercial and community broadcasters' categories where free to air (FTA) and subscription services are provided using various delivery media including terrestrial, satellite and cable.

1.1.1.2 Trends in Broadcasting

The future of broadcasting can be viewed from the perspective of technology, content, programming, user experience and security. The broadcasting service continues to undergo changes both globally and locally. However, television is essentially about content and content is about stories, and people have been telling stories. Thus, there will be new ways of delivering the content to the viewer, but the basic idea of a television is going to be with us in perpetuity[1]. Consequently, the future of Television is essentially

[1] David Wood, European Broadcasting Union. See https://www.youtube.com/watch?v=Zzz5uQJGpfg

about cooperative technologies - using the tools of IT and higher quality to provide a better experience. There will be a greater degree of involvement by the viewer (TV) and listener (radio) particularly in spheres such as interactivity.

Trends in broadcasting include the following

i. Evolution of the broadcasting business model into infrastructure provider, signal distributor, broadcaster and content provider.
ii. Digital terrestrial audio broadcasting (DTAB);
iii. Over the top services (OTTs) broadcasting - the online, eg., Youtube; and
iv. Specialization into infrastructure provider, broadcaster, content provider, signal distributor.

New technologies for TV. The higher the sound and the vision quality the more involved you feel in the program. There is therefore a major benefit in having higher image quality and sound quality; and in terms of technologies, there are all the benefits of personalization. There is also the cloud, use of voice activation; with human avatars on the screen and more sophistication of viewers. "So I think personally that the real future of Television can be summed up as giving television more of a human face"[2] The integrated access devices can receive both TV and radio broadcast signals. .

5G and TV. 5G may well become very popular with the public because of its high data rate, potentially low cost and imminent migration to 5G receivers. Technically, the need then becomes a 5G network which will allow broadcast to be received on 5G. 5G network run by MNOs will provide a high-speed network that can be used for provision of any service including broadcasting. Thus, broadcasters may just need to use the generally available 5G network for content distribution as well avail their content on other transmission media. In addition to that are all of the systems of combining broadcasting and Broadband; a hybrid Broadband broadcast system and all of these are going to interact and work together. These technologies will also allow consumer ability to interact with and personalize their use of radio hence experience.

One of characteristic of 5G networks is the use of higher frequencies which have limited coverage and this along security will make regulatory enablement and oversight become more imperative than before.

Anticipated viewers benefit from the new TV trends. The higher the sound and the vision quality the more involved you feel in the program, and the more you remember about it and eventually, the longer you will watch the program. There is a major benefit in having higher image quality and sound quality; that is on one side and that is a benefit for the viewer or listener. In terms of information technologies, there are all the benefits of personalization. Similarly, listeners will expect to effectively "listen" to radio programs, even if they have hearing impairment. This will require need audio to text translation and automatic audio to sign language translation directly to a smart screen for visualization of persons with hearing disability. to access the service.

Technology and Content for TV and radio. There is an epithet now, which is "technology is content and content is technology that these two are becoming

[2] ibid

indispensably interconnected"[3]. However, in order to be successful in television and future both mastery of the creativity of program making and the use of technology is required. For example, a lot of content now comes to viewers or listeners via internet and if it does, the content provider can know exactly who is watching what all the time; the content provider has a lot of data – this is Big Data and they can use this to shape the program; shape the future of the program. With regard to radio technology, innovation will enable PWDs to access radio service in suitable formats.

1.1.1.3 Quality of service

Quality of broadcasting services will continue to determine the relevance; it will continually impact the relevance and contribution of these services to the socio-economic development of Kenya. Metrics such as coverage, access to service; reliability and availability of service continue to shape this aspect of broadcasting services. Quality of service is also a key indicator for demand and underscores a functioning consumer protection regime especially where service providers are accountable to consumers for the quality of services they advertise vis-à-vis those they offer.

Quality of Service (QoS) is defined in ITU-T Rec. E.800 as the "the collective effects of service performance which determines the degree of satisfaction of a user of the service." This definition implies that QoS relates the inherent characteristics of a service that affects the fulfillment of service user requirements. In broadcasting, the eventual QoS experienced by the consumers is the sum of the quality of the various stages in the broadcasting value chain. These include broadcast content production, assembly and access and signal distribution network performance and customer-related service management functions.

1.1.1.4 An Imperative for broadcasting

The trends in broadcasting services suggest rethinking the delivery technologies including broadband, content development to emphasize relevance, programming, personalization of broadcast service to enhance viewer/ listener experience, receiver devices including those for people with special needs, quality of services – sound and image quality, and cooperative technologies to deliver broadcast services. Consumer protection concerns (online security, data protection, etc.) are also crucial as the broadcast services continue to evolve. In particular, difficult to reach rural areas can be covered using broadcasting satellite systems, specifically *"New orbital slots were opened up for broadcasting satellites, providing developing countries with the opportunity to regain access to spectrum orbit resources thanks to a priority mechanism especially set for them*".[4]

Further, there are important implications for policy, legislation and regulation in terms of extending the reach, access, and affordability of services, promoting innovation and ensuring relevance of content; and security of users including through consumer protection interventions. Another implication of the broadcast trends is human capacity development to support the delivery of effective broadcast services that will positively impact society including in political, social and economic sectors.

[3] ibid
[4] ITU News Magazine, No.6 2019, "Key outcomes of the World Radiocommunication Conference 2019

1.1.3 Context of the Baseline Survey

There is inadequate coverage of DTT and FM radio in the country hence the need to expand the coverage. For example, the percentage of uncovered population for DTT is Mandera (100%), Turkana (86%), Wajir (86%), Elgeyo Marakewet (62%), and Tana River (56%). For such areas, interventions are needed to ensure the populations are covered. The DTT population coverage is 91.21% (CA, June 30, 2021) while FM radio coverage is 87% (GeoPOLL, March 2021)

Part of the strategy to extend services to these unserved and/or underserved areas is the use of universal service fund (USF). The purpose of the USF is to ensure that areas that may be uncovered due to commercial consideration by private sector are ushered into the information and communication technology services – the information society - using the USF interventions in the broad framework of universal service access to the population. It is noted that though telecommunication services coverage through mobile telephony has been provided to majority of citizens in Kenya, this is not the case with regard to broadcasting services.

Licensed service providers. As of 30th June 2021 CA report, there were 186 operational FM radio and 135 operational digital terrestrial television (DTT) broadcasters in Kenya.

Service Gaps. There 1137 out of 8842 sub-locations that are not covered by DTT representing 8.79% of the population who do not access TV service. There are also 1240 out of 8842 sub-locations without FM radio coverage Further, even where there is coverage, there are areas that neither have satisfactory signal quality nor any signal at all due the topography of deep valleys hence causing signal blockage.

1.1.4 Overview of the Policy, Legal and Regulatory Framework

The National ICT Policy Guidelines 2020 [5] acknowledge that rapid technological advancement in the ICT sector has occasioned changes in the legal and administrative frameworks including challenges on cybersecurity and harmonization of frameworks both regionally and internationally. It aspires to utilize the universal service fund to ensure that both public and private ICT services and the knowledge necessary for their deployment and utility are available including by prudent management of the fund to drive universal access.

Legal mandate for services to PWDs. Regarding services to persons with disabilities, Section 11 of the Persons with Disabilities Act No. 14 of 2003 mandates the Government to take steps to the maximum of its available resources with a view to achieving the full realization of the rights of persons with disabilities. Section 39 obligates all television stations to provide sign language insets or subtitles in all newscasts and educational programmes, and in all programmes covering events of national significance.

The Persons with Disabilities (Access to Employment, Services and Facilities) Regulations, 2009 mandates the National Council for Persons with Disabilities (NCPWD)

[5] https://ca.go.ke/wp-content/uploads/2020/10/National-ICT-Policy-Guidelines-2020.pdf

in collaboration with the relevant Government departments, research institutions, development partners and local authorities to undertake, promote and sponsor research development of assistive devices including their psycho-social aspects. Regulation 7 also provides that subject to applicable Regulations relating to tax exemptions, persons with disabilities could apply for and obtain support and relief for, among others, purchase and repair of personal technical auxiliary devices and escorts and interpreters for people with impaired sight and hearing[6]. Under Regulation 10, the Government is further mandated to create conditions for equality of persons with disabilities with the other persons including by ensuring adapted visual and sound translation of cultural, recreation, sport and other programmes and materials for persons with impaired sight and hearing.[7] Both public and private broadcasting stations were mandated under the expired Regulations to incorporate sign language in their television programmes.[8] The strategic vision of a barrier-free society for Persons with Disabilities is contained in the mission of the NCPWD strategic plan 2018 – 2022[9]: *To promote and protect equalization of opportunities and realization of human rights for PWDs to live decent livelihoods.* This is to be realised through:

a) Data and statistics
b) Empowerment of PWDs
c) Disability mainstreaming
d) Institutional capacity.

Further, the constitutional provision that are applicable for access to service by PWDs is presented in Appendix XII. There are also specific provisions in the programming code that address access to broadcasting services by PWDs.

Provisions for PWDs in the Programming code. The purpose of a programming code is to ensure that all people access broadcast services. Under the Programming Code for Broadcasting Services in Kenya[10], the guidelines on PWDs provide that:

i. Broadcasters shall take specific steps to include Persons with Disabilities (PWD) in different programmes. In addition, broadcasters should air programmes focusing on persons with disabilities with a view to improving their general welfare and wellbeing.
ii. Broadcasters are required to implement closed captioning, subtitling, and sign language inserts during news and current affairs programmes, emergency announcements and during programming of national interest such as national events.
iii. Humor based on physical, mental or sensory disability, even where no malice is present should be avoided. Reference to disability should only be included where relevant to the context.
iv. The amount of programming made accessible to PWDs shall be gradually increased as prescribed by the Authority from time to time.

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[6] Reg. 7(1)(a) & (e)
[7] Reg. 10(c)
[8] Reg. 16
[9] http://ncpwd.go.ke/images/NCPWD-2018-2022-Strategic-plan.pdf
[10] https://www.ca.go.ke/wp-content/uploads/2019/09/The-Programming-Code-for-Broadcasting-Services-in-Kenya-September-2019.pdf

On content for the physically challenged, Regulation 36 of the Kenya Information and Communications (Broadcasting) Regulations**,** 2009 provides:

1) the Authority shall require broadcasters to take specific steps to promote the understanding and enjoyment of programmes transmitted through its stations by persons who are physically challenged and in particular, persons who are deaf or hard of hearing, or who are blind of partially sighted
2) The Authority shall prescribe by notice in the *Gazette* the manner, time and percentage of programmes targeting persons referred to in paragraph (1) shall be broadcast

To meet the objectives on access to radio and tv services by PWDs, the Authority should gazette new targets for broadcasters pursuant to guideline 10.2 of the Programming Code.

1.2 Objectives and Justification of the Survey

This survey focused on both the supply and demand sides of the broadcasting sub-sector which comprises both radio and television with the aim of providing interventions for development of broadcast services for universal access.

1.2.1 Objectives the Survey

The purpose of the baseline survey of the broadcasting sector was:

(i) To identify gaps in service coverage and access to broadcasting services.
(ii) To identify challenges faced by broadcasting operators in rolling out services.
(iii) To identify the challenges that users face in accessing services including but not limited to broadcasting (Television and Radio).
(iv) To formulate strategies to bridge the identified gaps (service provider, consumer perspectives and regulatory).
(v) To provide training on financing models and Geographical Information Systems (GIS).

1.2.2 Justification of the survey

This survey was justified by both the supply and demand side imperatives of the Kenya broadcasting sub-sector. From a supply perspective, there is need for sufficient coverage for the whole population which includes persons with disabilities (PWDs) in both rural and urban areas who need to access and utilize a range of services. The supply side concerns namely, spectrum, signal coverage and its quality of signal, relevant content production, programming, and consumer protection needed to be determined.

From a demand perspective there is need for affordable, relevant, secure and quality content is needed to ensure that the sector contributes to the overall socio-economic development of the country. Therefore, there was also need to assess the demand for appropriate devices, accessories and technologies to meet the needs of persons with special needs and for the rest of the unserved/underserved population. Further, it was necessary to determine what policy, legal and regulatory measures were needed to spur further development of the broadcasting sector to ensure universal coverage and access

With regard to financing of the universal service, the Kenya Information Communications (Amendment) Act 2009 (KICA 2009) established the Universal Service Fund (USF) to complement private sector initiatives towards meeting universal access

objectives. The Fund is primarily financed by mandatory contributions from licensed operators which provide services in the various communications market segments, with provisions for complementary financing from other sources.

Section 84J (2) of the KICA provides that the object and the purpose of the Fund shall be to support widespread access to, support capacity building and promote innovation in information and communications technology services. Consequently, it was necessary to determine the specific interventions that would be supported by this fund.

1.3 Methodology

Design. Mixed methods research was used to collect both qualitative and quantitative data (a (see Appendix III). Data was collected from the Ministry of ICT, Innovation and Youth Affairs, ICT Authority (ICTA), National Council for Persons with Disabilities (NCPWD), Media Council of Kenya (MCK), TV and radio broadcasters, broadcast signal distributors (BSDs), consumer associations, consumers of broadcasting services (general public), and independent broadcasting content providers (please see Annex VI for complete list of key informants). Quantitative survey, key informant interviews and focus group discussions were used to collect primary data). Besides describing the study phenomena, associations between some pairs of variables was investigated and the results reported.

Sample. Both probability and non-probability sampling techniques were used. A two-tier sample was adopted; broadcasting service providers and consumers of broadcasting services (general public). The sampling frame for the service providers was the list of operational TV, Radio, and community broadcasters, obtained from the Communications Authority of Kenya (2021). Further signal distributors were also studied. The selection of customers of broadcasting services was done through simple random sampling. Table 1 provides a summary of the sampling.

Table 1: Sample

SN	Licensed Operators	Pop (N)	Sample (n)
1	Licensed FM Radio Stations (Commercial and Community)	186	106
2	Licensed Digital Terrestrial Television	135	92
4	National Public Broadcaster (KBC)	1	1
5	Signal distributors	3	1
6	Key Informants (Relevant MDAs and Associations)	18	18
	Sub-Total		**236**
	Consumers of Broadcast Services	**Pop (N)**	**Sample (n)**
6	General Public	>10,000	2,015
	Sub-Total		**2,015**
	Total		**2,051**

Questionnaires were administered using cloud based KOBO toolbox (http://www.kobotoolbox.com) where the program is installed on mobile phones and a digitized form uploaded on a remote server. Once data is collected, it is uploaded to a remote server where a system administrator downloads the data for analysis.

Analysis. Quantitative data was collected from 68 broadcasters comprising both community (n= 15) and commercial broadcasters (n=53) which respectively represented 76.8% commercial broadcasters and 24.2% community broadcasters. The list of broadcasters surveyed is included as Annex XI. Further, data was collected from broadcast service consumers (Figure 2). A response rate of 97.2% (n = 1950) was achieved for consumers of broadcast services. This response was satisfactory for describing broadcast services from the perspective of consumers. A total of 18 key informant interviews (KIIs) were also conducted between May and August 2021 and the data analysed using both qualitative and quantitative approaches. The KIIs were conducted using online conferencing tools- Google meet and Microsoft teams.

Coverage Analysis using Geographic Information System

A geographic information system (GIS) is a system designed to capture, store, manipulate, analyze, manage, and present all types of geographical data.

Analysis of coverage. GIS was used to analyze the coverage of DTT and FM transmission and to correlate this against the population and administrative data to establish the coverage at the sub-location level. The GIS was further used to identify populated pockets that did not have adequate coverage. The data was used as the basis for the recommendations provided in this report.

The data used for this analysis was obtained as follows:

a) *Broadcaster Data:* The positions of the broadcast facilities were obtained from the broadcast signal distributors (BSDs) and complemented with quarterly data from the CA. The data from different providers were consolidated as per Table 1. It should be noted that one of the signal service providers provided data from multiple directional antennas within one mast. In this case, the mean of the several powers provided was used as the effective power of an omnidirectional transmitter.

b) *Digital Elevation Model (DEM)*: The latest global DEM coverage was obtained from the AW3D30 dataset. This dataset provides a 30mx30m resolution across the entire country. Overlapping tiles from neighbouring countries were also obtained. Last updated in 2021.

c) *Demographic Data:* The population density at 30mx30m resolution was obtained from the Human Population Density set. This dataset has been harmonized with the 2019 census results, and was last updated in March 2020.

d) *Administrative Data*: The 2009 sub-location dataset was used.

Analysis Parameters. The following technical parameters were used for the GIS analysis:

Table 2: Analysis parameters

Item	Value	Justification
1. Transmitter Radius	80km	A transmitter is not expected to provide meaningful broadcast signal beyond this range
2. DTT Cutoff Field Strength	45 dBµV/m	ITU Guidelines

Results of the baseline survey are presented in the next two sections. The first section comprises the supply side findings while the second one is the demand side findings.

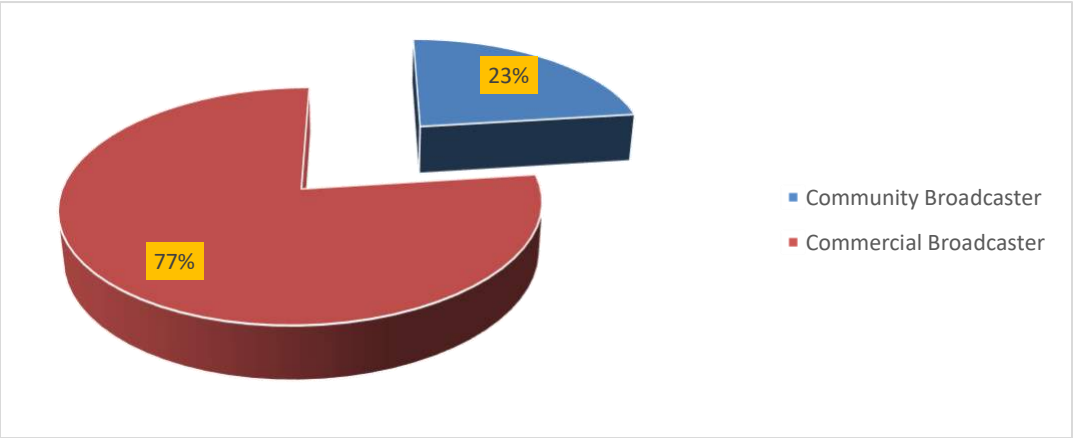
2. SUPPLY SIDE

In this section the results on supply factors comprising coverage, gaps and challenges experienced by service providers are presented. The distribution of the respondents, services provided and challenges in both urban and rural areas reported and comparisons made across gender and location - either rural or urban sub-location/area.

2.1 Demographics

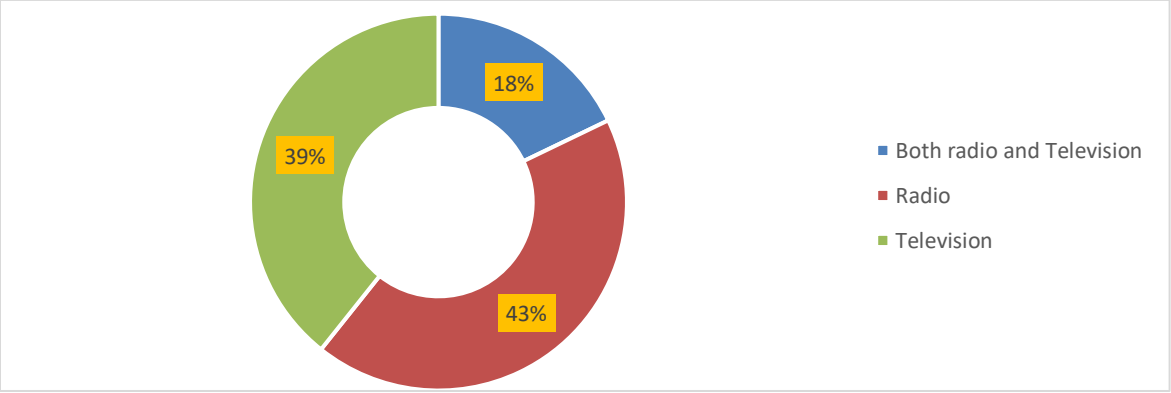
Figure 1 shows the proportion of responses for community and commercial broadcasters. 76.8% of the respondents were commercial broadcasters while 23.2% Community broadcasters.

Figure 1: Category of broadcaster



Type of Broadcasting Service. The types of broadcast services available are radio and TV as presented in Figure 2 where some service providers provided both radio and TV broadcasting services.

Figure 2: Type of broadcast services



Out of the broadcasters that were surveyed, 43% (n= 24) provided only radio broadcast, 39% (n=22) only TV broadcast while 18% (n=10) had both radio and TV broadcasts (Figure 2).

2.2 Coverage of Broadcasting Services in Kenya

2.2.1 Broadcast infrastructure in Kenya

The broadcasting services in Kenya include TV and Radio and are mainly delivered in four main formats: free to air terrestrial signals, terrestrial pay TV, satellite signal (DHT), cable and online which is increasingly becoming popular.

Free to Air - The most affordable broadcast options are the free to air services with the most affordable options being FM radio broadcasting services with 98% of the population being able to afford a radio set according the 2015 BBC media Action Report.

The main challenge for the free to air FM radio broadcasting services is lack of coverage mainly in the North Western and North Eastern parts of Kenya. From the survey of signal distributors (*Signet, PANG and ADNL*), there are no transmitter sites in these areas. There are also poor signal reception areas in the already served areas in both rural and urban where there are deep valleys causing signal to either be totally or partially blocked.

Terrestrial pay TV - this is a premium programming service selected by and sold to subscribers on a per-channel or per-program basis. Examples of terrestrial pay TV subscriptions in Kenya include Dstv, StarTimes and GoTV.

Satellite - The satellite signal covers the whole country. The major challenges with the satellite signal are that the consumer terminal equipment are expensive and the programming on it are for pay services, which are not affordable by most people.

Online - These include streaming services such as Netflix, ShowMax, Amazon Prime and YoutTube live. To access these channels, one has to have access to internet connectivity. Multiple devices can be used for online streaming such as personal computers, smart TVs, smartphones, tablets, streaming media players and game consoles[11].

2.2.2 Signal Coverage of broadcasting services

The coverage of DTT in Kenya is provided by PANG, SIGNET, ADNL, Bamba (Lancia) and GoTV. The population coverage by signal distributors is as follows (Table 3).

Table 3: Population coverage for DTT

Signal Distributor	Population Coverage (%)
PANG	63.10%
Signet	76.36%
ADNL	83.26%
Bamba (Lancia)	43.27%
GOTV	80.39%
Overall	**91.21%**

Source: CA Q3 of fiscal year 2020/21

2.2.2.1 Urban areas

Urban areas of Kenya have the highest number of broadcasting service providers. The main languages used in delivery of broadcasting services in the urban areas are

[11] https://www.netflix.com/ke/

Kiswahili and English. A number of the major local languages are also used in the broadcasting services (these are Kikuyu, Luhya, Luo, Kalenjin, Gusii, Kamba, Maasai, Turkana, Borana and Somali). The urban areas are the major consumers of public, commercial, religious, community, international and learning institution broadcasting services. Broadcasting services are mainly accessed for entertainment, information and educational purposes.

2.2.2.2 Rural areas

According to this survey 68.1% of the rural population received satisfactory radio broadcast signal while 61.3% received satisfactory quality of TV signal. The more economically developed rural areas are the better they are served than those in remote rural areas.

Data from signal distributors shows that North Western and North Eastern of Kenya have no transmitter stations and hence lack broadcasting signal; transmitter sites are also located far from consumers since the signal is poor.

The broadcasting services to most of the remote areas are from Kenya Broadcasting Corporation and Royal Media services; the other broadcasters are Kenya Television Network (KTN) and Nation TV (NTV) among others. These two have FM radio broadcast in local languages in respective areas where they have coverage.

The top five counties with least TV coverage of population are in the Northern and Eastern parts of Kenya including Mandera (100%), Turkana (86%), Wajir (86%), Elgeyo Marakwet (62%), and Tana River (56%).

It is also noted that FM radio spectrum was fully allocated in Nairobi and Mombasa and limits the provision of FM radio in these urban areas.

2.2.3 DTT Coverage

The coverage of TV broadcast services by count and sub-location in each of the 47 counties is presented on Table 4.

Table 4: DTT Coverage by County and sub-location

#	County	Number of sub-locations with no signal	Total number of sub-locations
1	Nairobi	0	147
2	Nyamira	0	113
3	Kisii	0	246
4	Migori	0	230
5	Kisumu	0	175
6	Siaya	0	178
7	Bungoma	0	199
8	Kakamega	0	92
9	Kericho	0	220
10	Kajiado	0	196
11	Narok	0	187
12	Nakuru	0	300
13	Laikipia	0	114
14	Uasin Gishu	0	107
15	West Pokot	0	261

#	County	Number of sub-locations with no signal	Total number of sub-locations
16	Kiambu	0	267
17	Muranga	0	271
18	Kirinyaga	0	132
19	Nyeri	0	254
20	Nyandarua	0	185
21	Machakos	0	242
22	Embu	0	128
23	Tharaka Nithi	0	133
24	Isiolo	0	87
25	Garissa	0	154
26	Lamu	0	48
27	Kwale	0	90
28	Mombasa	0	38
29	Meru	0	436
30	Trans Nzoia	12	65
31	Mandera	166	166
32	Turkana	142	165
33	Wajir	221	255
34	Marsabit	80	136
35	Elgeyo Marakwet	129	206
36	Tana River	48	113
37	Taita Taveta	46	94
38	Samburu	56	210
39	Bomet	58	175
40	Kitui	39	431
41	Nandi	42	307
42	Makueni	34	244
43	Baringo	26	290
44	Kilifi	22	181
45	Homa Bay	12	243
46	Vihiga	2	137
47	Busia	1	194
	Total	1137	8842

Source: DTT Coverage (31st June 2021)

As shown in Table 4 TV broadcasting services have been extended to all the 47 counties. However, there are 1137 sub-locations in 18 counties that have no TV broadcasting services as illustrated in Table 4. Most TV broadcasters are in Nairobi. The unserved areas (Table 4) are proposed for priority with considerations on the population size in those areas. Furthermore, proximate existing transmitter sites should be considered for upgrade to serve the area that is under/unserved. The data also indicates the need to prioritise FM radio coverage especially on the basis of affordability.

2.2.4 FM Radio coverage

There are 1240 sub-locations without FM radio coverage out of the 8842; these are 103 sub-locations more that sub-locations without TV signal coverage. These sub-locations

are mainly in the northern and eastern parts of Kenya. Table 5 shows the uncovered population in sub-locations.

Table 5: FM radio coverage by county and sub-location

SN	County	Population without coverage	Total population 2019 census	Percentage without coverage %	No. of sub-location not covered	Total number of sub-locations	% of sub-locations not covered
1.	Embu	18,519	608,599	3,04	89	128	69.53%
2.	Busia	171,518	893,681	19.19	116	194	59.79%
3.	Garissa	483,042	841,353	57.41	74	154	48.05%
4.	Kajiado	190,818	1,117,840	17.07	91	196	46.43%
5.	Isiolo	18,06	268,002	7.07	37	87	42.53%
6.	Laikipia	64,589	518,560	12.45	46	114	40.35%
7.	Baringo	68,943	666,763	10.34	101	290	34.83%
8.	Kwale	34,593	866,820	3.99	31	90	34.44%
9.	Bomet	0	875,689	0	58	175	33.14%
10.	Machakos	242,823	1,421,932	17.07	60	242	24.79%
11.	Kitui	69,743	1,136,187	6.14	106	431	24.59%
12.	Homa Bay	23,362	1,131,950	2.06	56	243	23.05%
13.	Marsabit	63,664	459,785	13,84	30	136	22.06%
14.	Turkana	166,570	926,976	17.98	35	165	21.21%
15.	Mandera	574,892	867,457	66.27	35	166	21.08%
16.	Tharaka Nithi	109,926	393,177	27.95	26	133	19.55%
17.	Wajir	356,865	781,263	45.67	49	255	19.22%
18.	Makueni	212,125	987,653	21.47	45	244	18.44%
19.	Tana River	31,493	315,943	9.96	16	113	14.16%
20.	Siaya	64,074	993,183	6.45	21	178	11.80%
21.	Narok	66,512	1,157,873	5.74	20	187	10.70%
22.	Kericho	0	901,777	0	23	220	10.45%
23.	Samburu	26,490	310,327	8.53	21	210	10.00%
24.	Kilifi	2,176	1,453,787	0.15	17	181	9.39%
25.	Kirinyaga	0	610,411	0	12	132	9.09%
26.	Kiambu	12,264	2,417,735	0.51	14	267	5.24%
27.	Lamu	1,880	143,920	1.3	2	48	4.17%
28.	Migori	9,741	1,116,436	0.87	5	230	2.17%
29.	Taita Taveta	31	340,671	0	2	94	2.13%
30.	Bungoma	0	1,670,570	0	1	199	0.50%
31.	West Pokot	4,520	621,241	0.69	1	261	0.38%
32.	Elgeyo Marakwet	0	454,480	0		206	0.00%
33.	Kakamega	0	1,867,579	0		92	0.00%
34.	Kisii	0	1,266,860	0		246	0.00%
35.	Kisumu	0	1,155,574	0		175	0.00%
36.	Meru	0	1,545,714	0		436	0.00%
37.	Mombasa	0	1,208,333	0		38	0.00%
38.	Muranga	0	1,056,640	0		271	0.00%
39.	Nairobi	0	4,397,073	0		147	0.00%
40.	Nakuru	0	2,162,202	0		300	0.00%
41.	Nandi	0	885,711	0		307	0.00%
42.	Nyamira	0	605,576	0		113	0.00%
43.	Nyandarua	0	638,289	0		185	0.00%
44.	Nyeri	0	759,164	0		254	0.00%
45.	Trans Nzoia	0	990,341	0		65	0.00%

46.	Uasin Gishu	0	1,163,186	0		107	0.00%
47.	Vihiga	0	590,013	0		137	0.00%
	Total	**3,089,800**	**47,564,300**	**6.5**	**1,240**		

2.2.5 GIS Analysis of Access to DTT Broadcasting Services

2.2.5.1 DTT GIS Analysis

a) Data Visualization

The different datasets were loaded onto the GIS environment (QGIS). Figure 3 shows a map of the different broadcasting sites across the country.

Figure 3: Distribution of DTT Broadcast Sites

b) Viewshed Analysis

Viewshed analysis was conducted on the broadcast sites using the data contained in Table 5. In this context, a viewshed defines the areas that have an opportunity to receive a signal from a transmitter at a particular location. The viewshed algorithm considered the altitude of the site, the antenna height and the terrain defined by the digital elevation model to identify which areas can receive a signal.

The result of this analysis was a visibility raster dataset which showed the number of signals one can receive at every point within Kenya as shown in Figure 5. It should be noted that the viewsheds at this point were clipped to an 80km radius from each transmitter. The viewsheds at this point did not consider the strength of the signal.

c) Proximity Analysis

A raster proximity dataset was generated from the broadcast sites. This provided the distance from any one point in Keya to the nearest broadcasting station. Figure 6 shows a proximity map based on the broadcast sites.

d) Transmission Field Strength Modeling

An 80km buffer was generated around each DTT broadcast site. Where there were overlaps between the buffers, the buffer with a weaker signal was deleted. These buffers were then used to generate a transmitter power raster dataset.

A transmission field strength map was generated using the following expression:

E = 120+ (20* log10 (sqrt (30 * power)/(distance+1)))

Where E is the strength in dBμV/m, the transmitted power is in Watts and the distance is in metres. The value of 1 was added to avoid division by zero errors.

The distances were obtained from the proximity dataset while the power was obtained from the transmitter power raster dataset above. The field strength dataset was then correlated with the viewshed dataset to eliminate any sites that lack visibility. Figure 6 shows the signal coverage map obtained for each point across the country.

e) Identification of No Coverage Areas

The coverage dataset was inverted to obtain a dataset of areas with no coverage. This is shown in Figure 4.

Figure 4: DTT Stations and low Coverage pockets

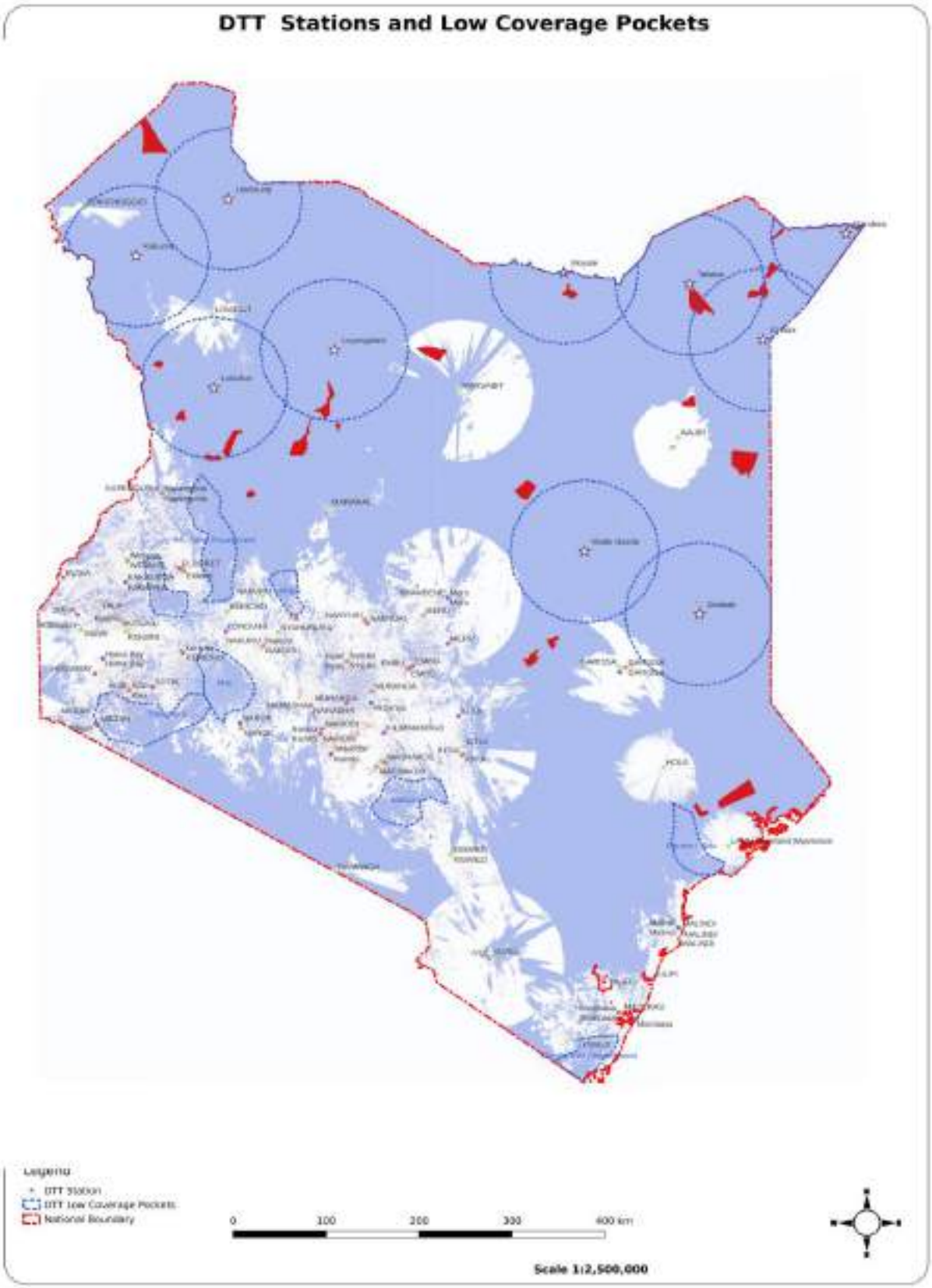
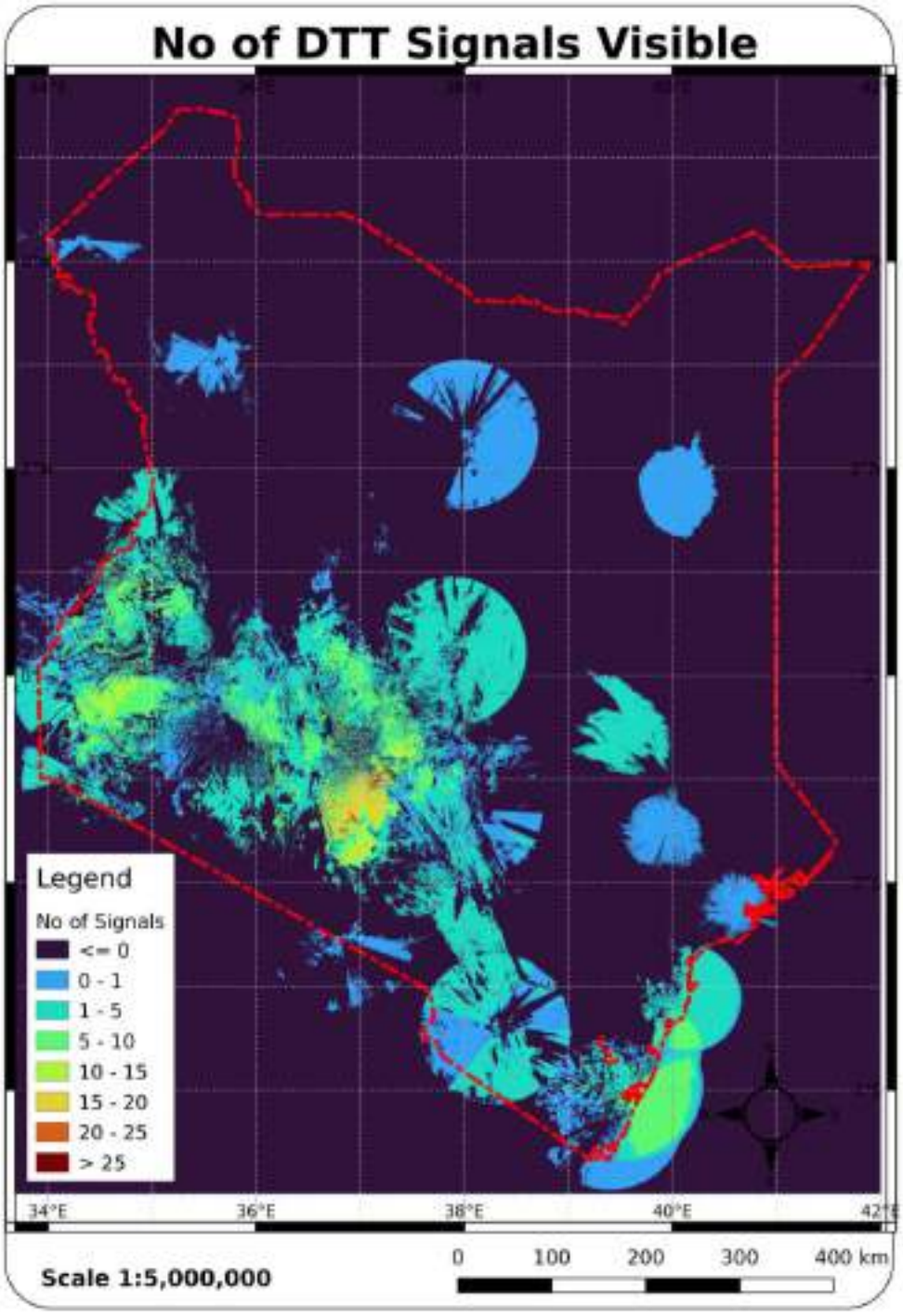


Figure 5: Signal Visibility Map



Proximity Analysis: A proximity map was generated from the broadcast sites. This provided the distance from any one point to the nearest broadcasting station.

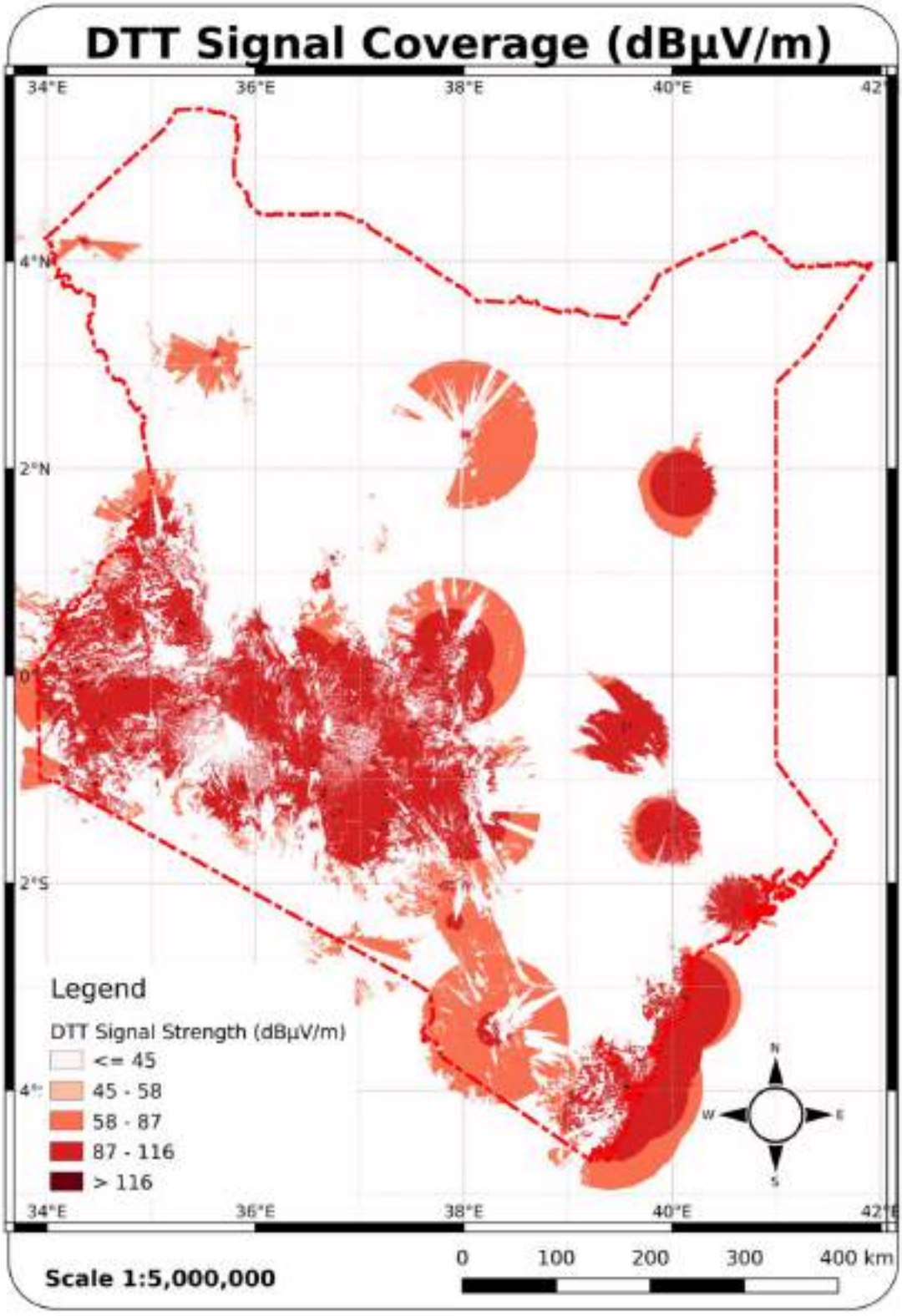
An 80km buffer was generated around each broadcast site. Where there were overlaps between the buffers, the buffer with a weaker signal was deleted. These buffers were

then used to generate a transmitter power raster map. A transmission field strength map was generated using the following expression:

$$E = 120 + (20 * \log10 (\text{sqrt}(30 * \text{power})/(\text{distance}+1)))$$

Where E is the strength in dBμV/m, the transmitted power is in Watts and the distance is in metres. The value of 1 was added to avoid division by zero errors.

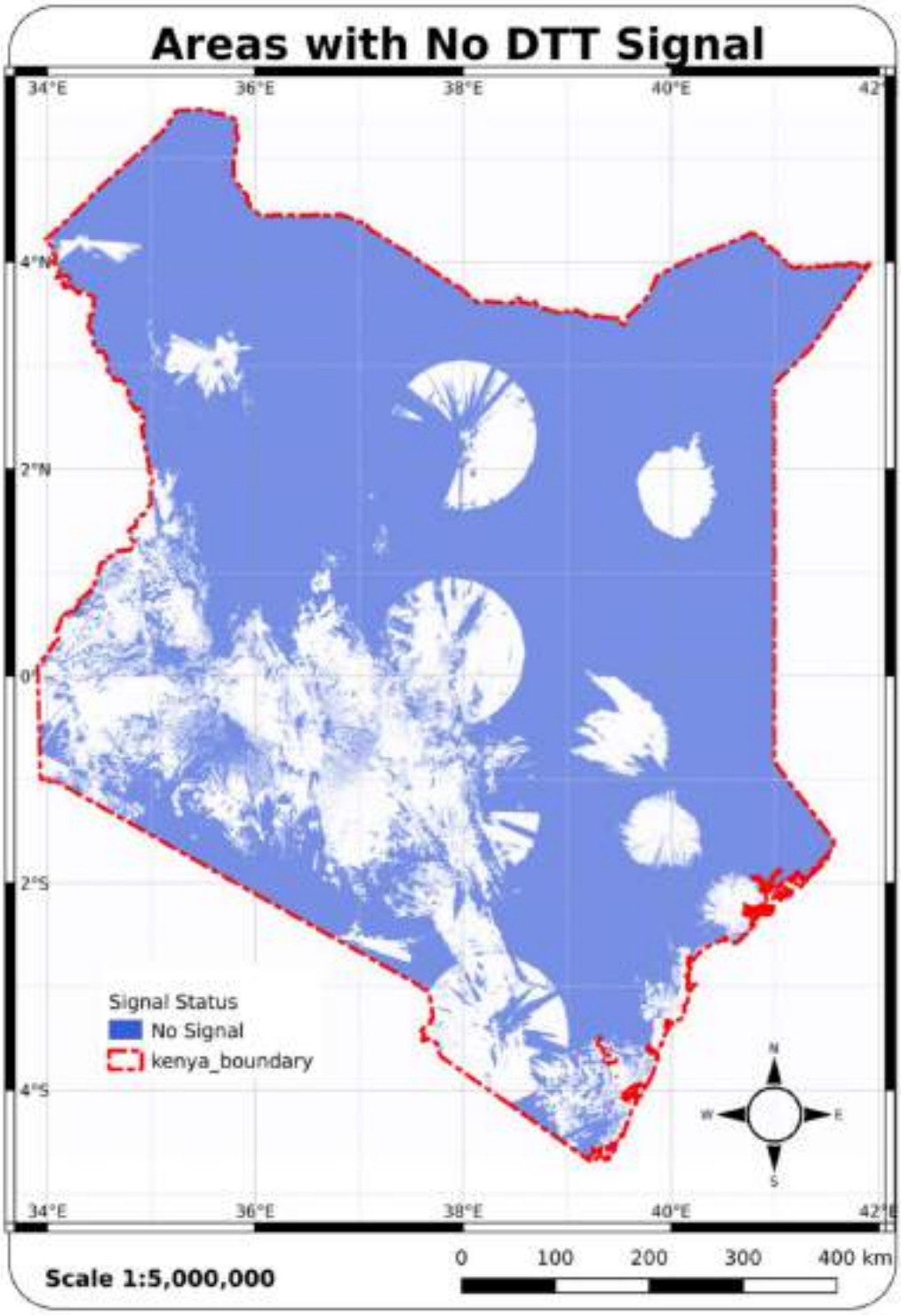
Figure 6: DTT signal coverage map



The field strength map was then correlated with the viewshed map to eliminate any sites that lack visibility. This is the source of the coverage map.

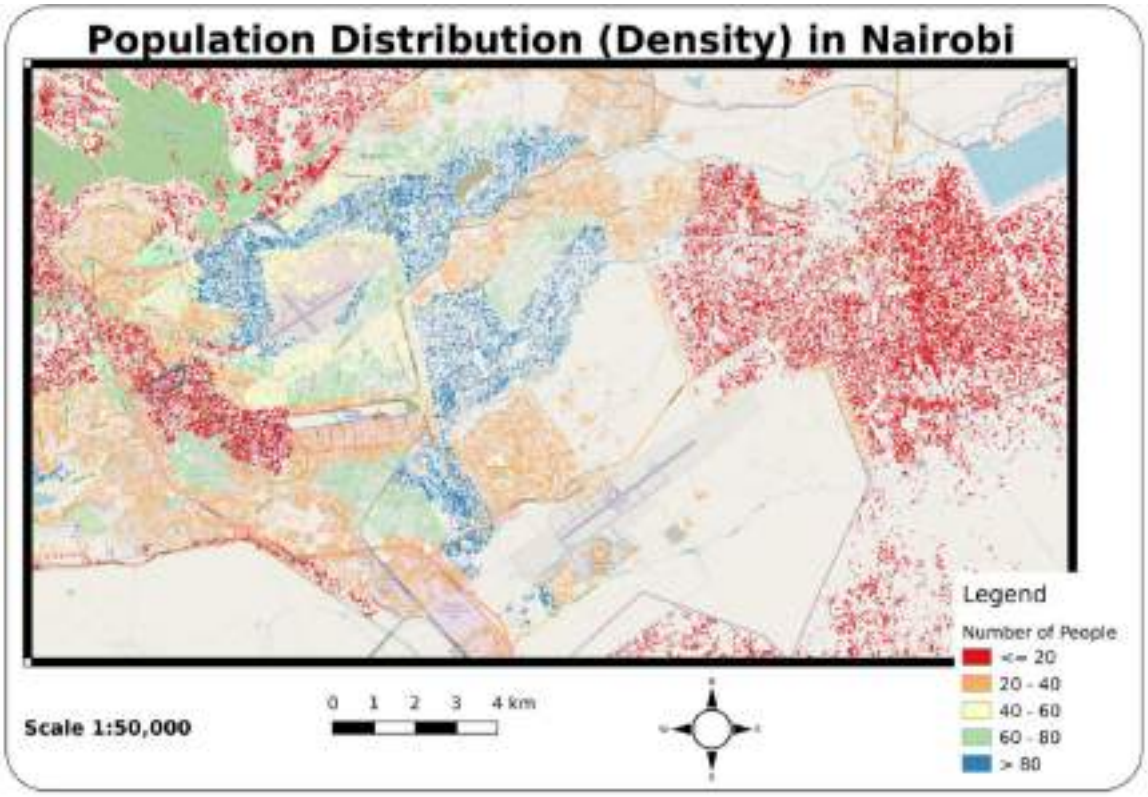
The coverage gap map was generated for all locations outside viewsheds or receiving less than 45 dBμV/m.

Figure 7: Map of areas with no DTT coverage



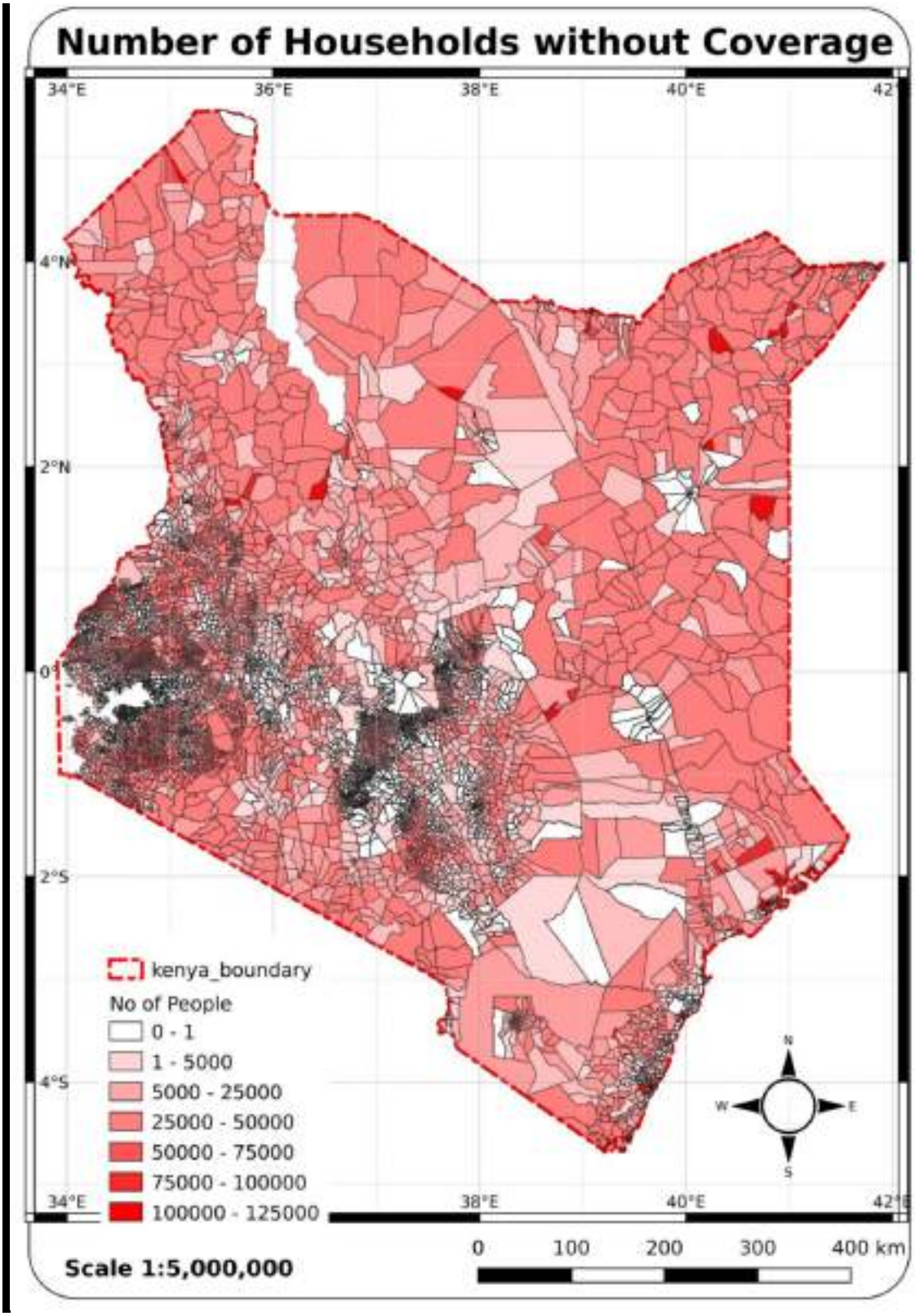
The "no coverage map" was then multiplied by the population map to yield a map of population without DTT signal coverage, Figure 8 is an example of the population density map while Figure 9 is the population without DTT signal coverage.

Figure 8: Signal coverage per population



This map (figure 9) was used to generate the sub-location "no coverage" level statistics where the population without DTT coverage is shown in Figure 9.

Figure 9: Coverage by sub-location



2.7.2 FM GIS Analysis

The FM coverage map is shown as Figure 10: where there is less coverage in northern and eastern parts of Kenya.

Figure 10: Radio FM coverage Map (FM scans)

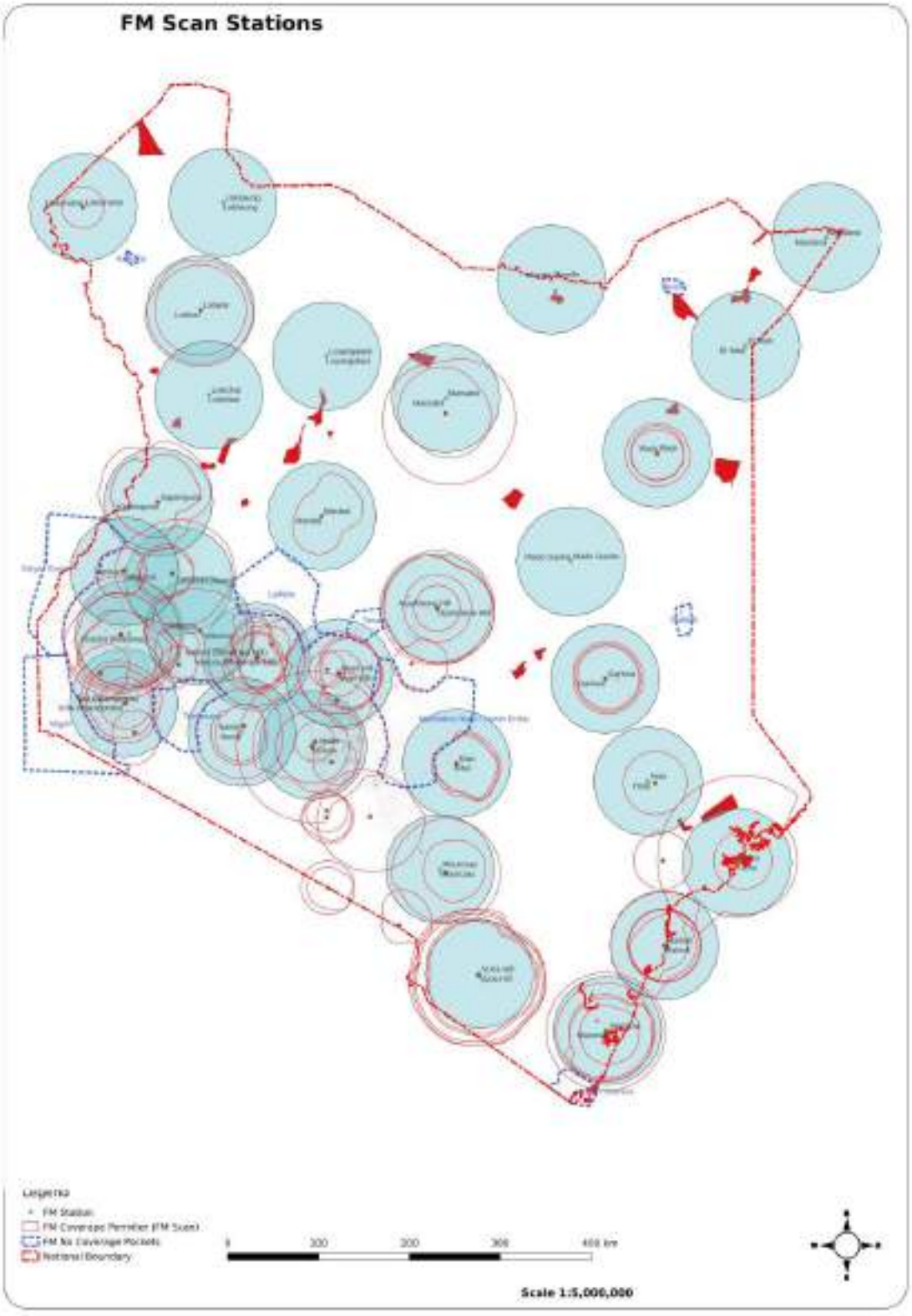
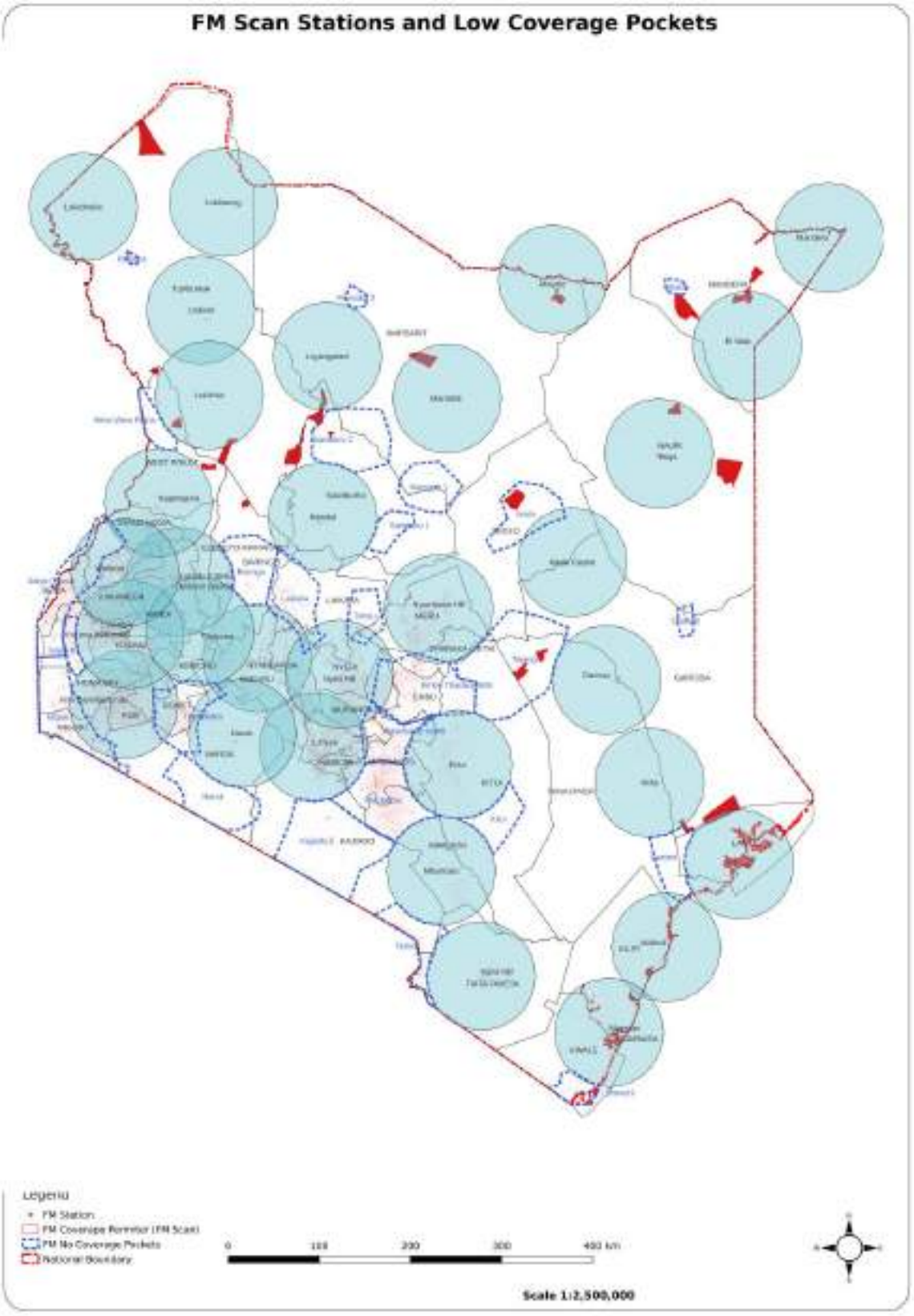


Figure 11: FM scan stations and low signal coverage pockets.

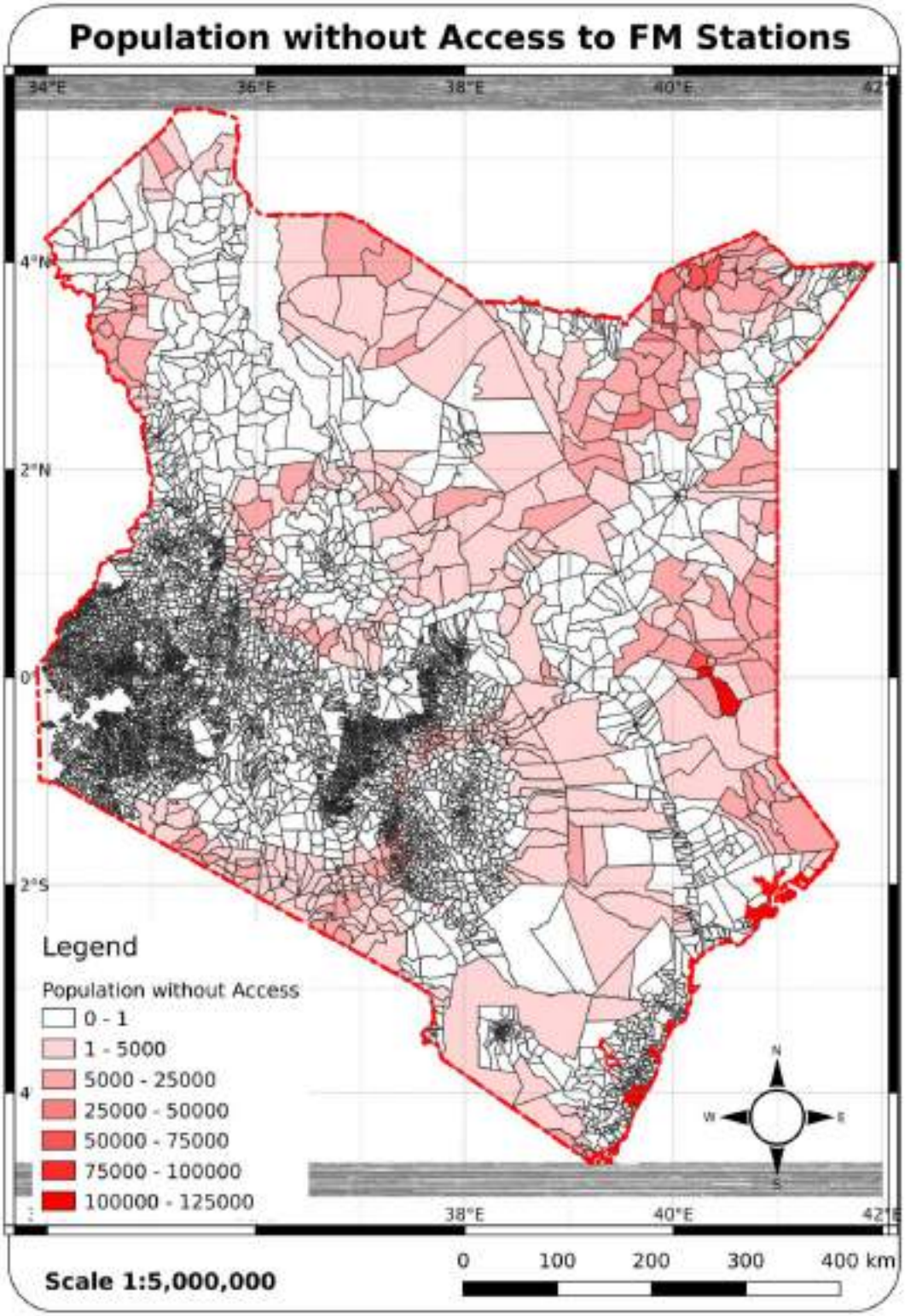


As shown in Figure 11, there are several low signal coverage pockets around the coverage areas such as between Nyanguru, Timboroa and Narok transmitter stations; and between Nyambene, Maralal, and Nyeri, no coverage pockets are also observed between Menengai Hill and Eldoret (Siani) transmitter stations. Low coverage pockets are also found between Bomet, Narok, Kisii and Timboroa transmitter stations. The FM stations and buffers are shown in Figure 12.

Figure 12: FM Stations and Buffer

Population without FM coverage. The population without coverage is shown in figure 13.

Figure 13: Population access gaps



As seen from Figure 13, areas with least coverage are to the north and eastern parts of Kenya at the border with Tanzania.

2.2.5 Coverage and access to broadcasting services

Currently, there is sufficient frequencies for television broadcasters while there is an increasing demand for FM radio frequencies. The penetration of television is at 91.15 % of the population while radio is at 87%.

The broadcasting services accessed by most people are the free to air (FTA) FM radio services followed by free to air digital television services at 90.15% of the population as per the Q2 audience survey (*see CA report of 2021*). The others are accessed via satellite, online and cables. Currently the penetration of broadcasting services in Kenya is via the following channels:

Digital Terrestrial Television (DTT)). This is a free to air television broadcasting service with 91.21% population coverage in Kenya[12]. Most of the Kenyan based television stations are free to air.

FM Radio broadcast services. FM radio broadcasting covers 87% of the population.

Satellite broadcasting services. Satellite broadcast services are mainly for pay broadcast services. They cover both television and radio broadcasting services. The satellite broadcasting services cover the whole of Kenyan landmass. The main hindrance to accessing satellite broadcasting is the high cost of terminal equipment (KES. 6000 per unit) and monthly subscription for the service which ranges from KES. 1380 to 8000 (Multichoice/ DSTV)[13], GoTV (KES 590 - 1299)[14], and StarTimes (KES. 299 - 899[15])

Online broadcasting services. The online broadcasting services are available where the telecommunication infrastructure is developed. The main challenge is that the consumer must have internet connectivity and also pay for the service. Online broadcasting service carries most of the local channels and also international channels examples are Viusasa; there are also Facebook, and Youtube based broadcasters.

2.2.6 Barriers to Coverage of broadcasting services

Though it is the objective of the government to provide universal broadcasting services to all citizens, there are various barriers that should be addressed. They include infrastructure deficit, lack of ancillary infrastructure and insecurity in parts of the country that have no coverage.

2.2.6.1 Economic viability

To the extent that it is economically unviable to roll out broadcast infrastructure to some remote rural areas, there is inadequate coverage. Broadcast signal coverage in Northern and North Eastern parts of Kenya is either poor or completely lacking such as Loyangalani. Due to high cost of set up and operational costs but with low returns on investment. These areas have no transmitters hence the need to provide transmitters

[12] https://ca.go.ke/wp-content/uploads/2021/06/Broadcasting-Services-Report-for-third-quarter-of-2020-2021.pdf
[13] https://www.dstvafrica.com/en-ke/browse-compare-packages
[14] https://kescholars.com/gotv-kenya-packages-prices
[15] https://www.startimestv.com/bouquet

and transposers (where there is coverage but poor signal) respectively provide and improve signal quality.

2.2.6.2 Regulatory compliance

Besides the cost of permits and licenses, and for setting up broadcasting infrastructure, the cost of profanity delay equipment (to permit censorship in line with programming code), logging (recording of broadcast output and storage thereof for a minimum of one year) and band pass equipment (to delimit the signal within the frequency allocated to prevent interference) which are a compulsory requirement by CA are barrier to coverage. The costs for regulatory compliance including band pass filter, profanity delay, logging equipment are prohibitive to the community broadcasters. Further, there are multiple organizations that impose levies on broadcasters; they include county governments that levy transmitter site fees (transmitter and filming), MCK for journalist's accreditation fees, Kenya Copyright Board (KECOBO) (KES 1,000 per work), county governments. and station fees (KES 15,000). Comparatively, it is however noted that the licensing fees by the CA are competitive within the region. It is however noted that, comparatively, it is however noted that the licensing fees by the CA are competitive within the region.

2.2.6.3 Support infrastructure

Lack or unreliable power supply. There is either no or inadequate commercial power supply/connection in the remote rural areas, especially in the North Western and North Eastern parts of Kenya yet it is expensive to run transmitter sites on generators. There are also frequent power failures or outages that take some broadcasters completely off air or force them to run on generators. In some areas there is no power while in others it is unreliable

Insecurity. Insecurity in some parts of Kenya (Northern Kenya) has limited investment on broadcasting infrastructure such as setting up of transmitter stations. This then creates unserved areas due to limited signal reach. Insecurity also leads to destruction and vandalism of broadcast equipment hence leading to signal loss in those areas.

2.3 Broadcast Content

For the broadcasting sector to contribute to socio-economic development its content and programming should be aligned with national development imperatives as expoused in the Kenya Vision 2030 and attendant priority programmes/ projects. Content underpins the viewership and consumption of TV and radio. Since hunger, health, education, housing, and manufacturing are some of the priority areas, the broadcast content and programming should adequately cover them.

2.3.1 TV Content production

According to a KII with the content service providers, content production is expensive and the cost of content production is described, e.g., it was found that an episode costs KES 600,000- 800,000.

The content production cycle is as follows:

1. **Pre-production -** this involves a) research/brainstorming to come up with creative content/script b) licence application from KFCB (KES 15,000) c) permit application from the county government for each day of production/filming

According to a key informant, Kajiado is the most expensive county as they charge KES 150,000 per day whereas Machakos county is free.

2. **Production -** this entails the actual shooting/recording of the film. Costs in this phase are incurred on a daily basis. A producer however has an option of engaging the crew and actors on a contract basis or on per-day basis
3. **Post production -** this is editing and putting of the film together. Audio/Music to the shoot is also inserted at this point.
4. **Marketing -** This is the final step in the production. According to a key informant, *"Due to the costs incurred in pre-production and production, most content producers run out of the funds at the post production stage and hence are unable to fully edit their productions"*. This stage being critical, most productions do not reach this point hence need for support.

2.3.2 Radio Content Production

As a result of the challenges experienced in local content production, there is inadequate relevant local content. The content that is available is expensive partly due to production costs (TV: KES 600,000 per episode; Radio: KES 150,000 per episode). Some local content is also perceived as inappropriate to the audience due to the language used and cultural perceptions of society of some content; some of the content is also perceived of little relevance to the socio-economic development imperatives of the country. There is thus a need to improve content through incentives, production facilities, capacity building and marketing.

Further, though policies and legislation on the call for inclusion of persons with disabilities to facilitate their access to broadcast services are in place, there still exist bottlenecks in the realization of this objective. Content creators, for example, avoid or are unable to convert and package their content in PWDs accessible formats partly due to high production costs (TV: KES 600,000 per episode; Radio: KES 150,000 per episode) of original content before conversion, and lack of incentives to both produce original content and potentially convert them to accessible formats for PWDs.

2.3.3 Content gaps

Content gaps denote the absence of certain content components that affect or undermine demand for services. They also encompass consumer needs that are yet to be met by service providers or content creators. Content gaps also include needed regulatory interventions that are necessary to spur given or defined content objectives.

Consequently, there is need to create content which is relevant to the local setting to preserve the rich cultural heritage of the people of Kenya, is appealing to the wider audience nationally; and which resonates with national development priorities. Some of the content should also be capable of being exported.

The findings of this survey are that news and entertainment receive much more attention than national development imperatives. In this regard, the identified gaps are limited relevant local content, limited content for PWDs, insufficient enforcement of content objectives, and high cost of local content.

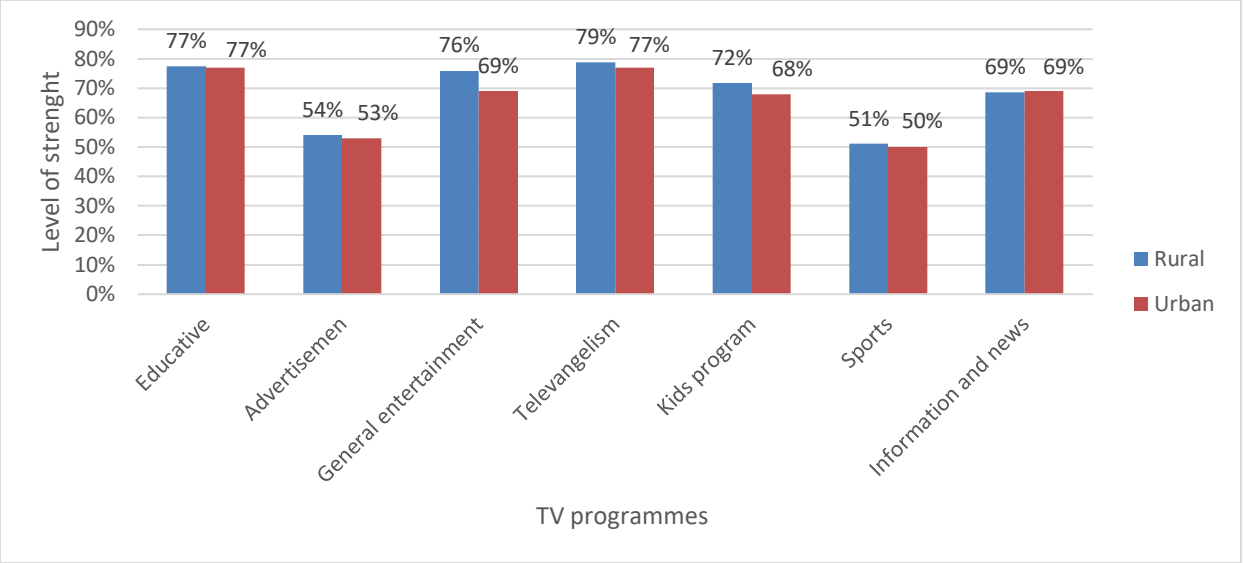
2.4 Programming

The finding on the progamming by both TV and radio programming and their comparison across rural and urban setting are set out here.

2.4.1 TV programming

Information obtained from the data on TV programming is presented in Figure 14. The results indicate the level of viewership of the various programs aired by broadcasters. The programmes that were reported in the survey included educative, advertisement, general entertainment, televangelism, children's programs, sports and information and news.

Figure 14: Comparison on TV program programming

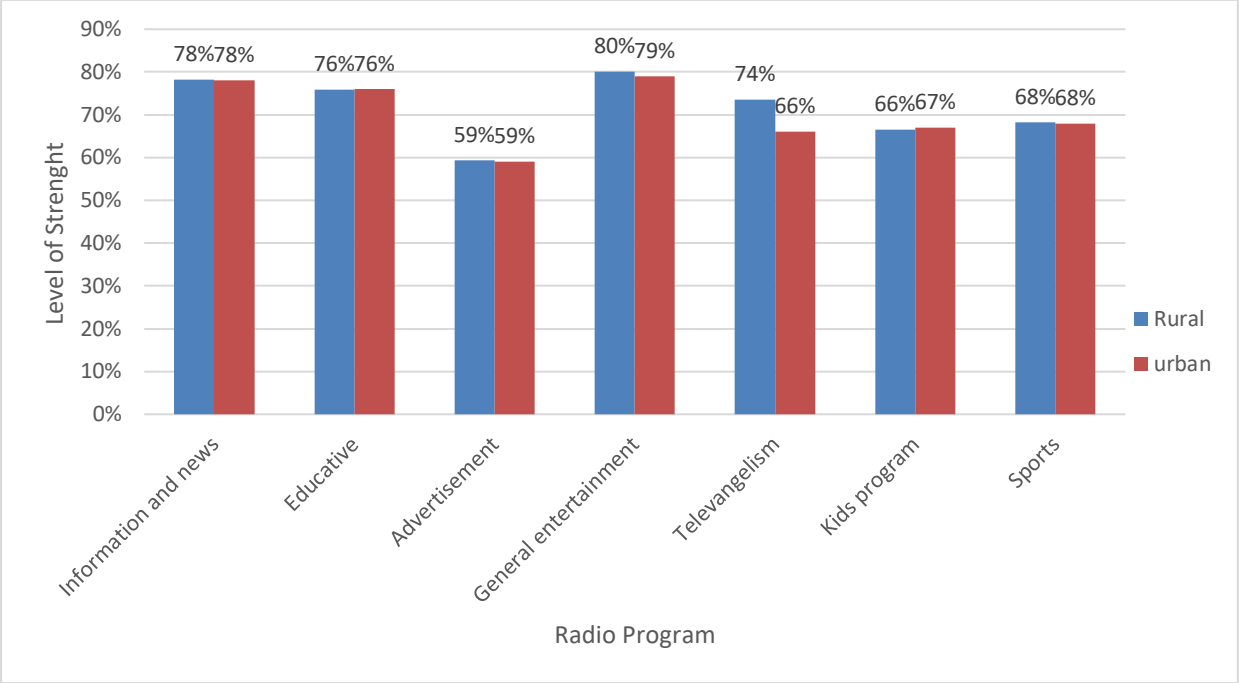


The results in Figure 14 implies that the broadcasters' programming is almost the same regardless of whether they rural or urban. From the findings, most of the TV broadcasters ranked had televangelism educative and general entertainment programs as the ones that were broadcast most. Advertisement and sports scored the least in the program category in both the rural and urban areas.

2.4.2 Radio programming

The programming by radio stations is presented in Figure 15 where a comparison between rural and urban areas is presented.

Figure 15: Comparison on Radio program programming in both rural and urban areas



As shown in Figure 15, all the radio broadcast programs were almost the same except televangelism which was higher in rural areas than in the urban areas by 9 per cent points (rural: 75%; urban: 66%). The programming (in decreasing order of importance) as perceived by the radio broadcasters include general entertainment, information and news, education, televangelism and sports. Similar to TV broadcast, advertisement was regarded as low in both rural and urban areas (<60%).

2.4.3 Programming gaps

TV and Radio programming need improvement since politics and other programs perceived to be of minimal developmental value (such as televangelism) were perceived to receive disproportionately high air time. Further, some "adult" programmes need to be scheduled in a manner that respects the rights of the audience rather than appearing at watershed time. The programming needs to be improved through enforcement of relevant codes and more attention to the socio-economic development imperatives of the country including health, food security, manufacturing and housing, and education. Consequently, there is a need to promote production of content that has socio-economic impact such as food production, education, technology innovation and manufacturing, environment protection, water and sanitation, health, peace-building and security among others.

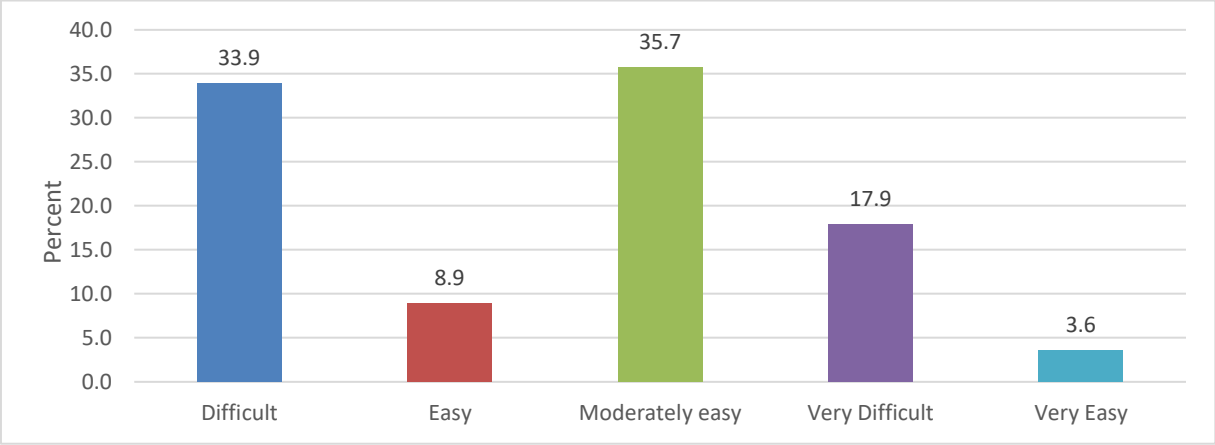
Furthermore, there is need to improve programming to avoid certain content broadcasts at “unsuitable time” such as at watershed time. Further, there is need to promote production of content that has socio-economic impact such as food production, education, technology innovation and manufacturing, environment protection, water and sanitation, health, peace-building and security among others.

2.5 Challenges faced by broadcasting service providers

2.5.1 Licensing

A license empowers a service provider to operate broadcast services and the ease with which it is obtained and the applicable charges impact the development of the sub-sector. The ease with which service providers were able to obtain licenses to provide services is reported in Figure 16.

Figure 16: Ease of obtaining license



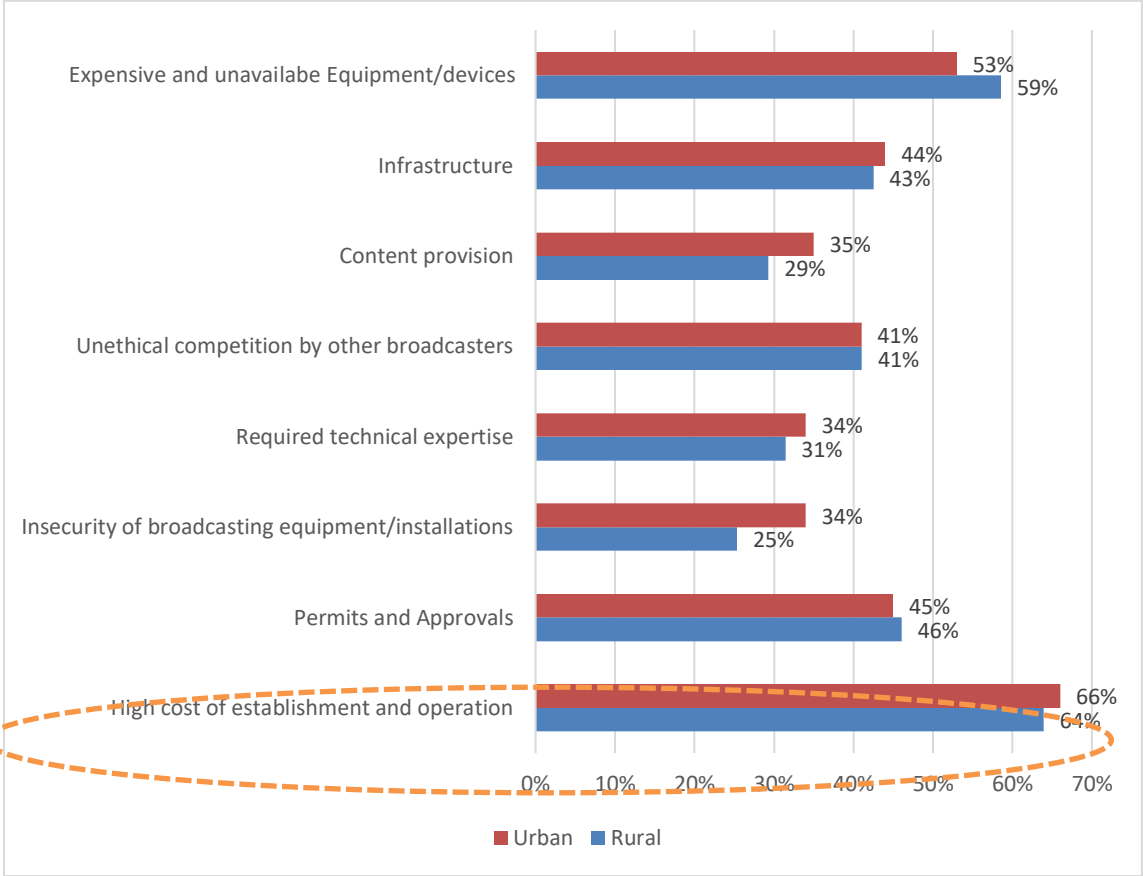
As can be seen from the result in Figure 16, obtaining a broadcasting license was perceived to be difficult as reported by 51.8% (Difficult: 33.9%; Very difficult: 17.9%) of broadcasters whereas only 12.5% of broadcasters stated that the process was easy or very easy. This perception could be attributed to the delay in receiving feedback on applications and lack of awareness on the licensing requirements and processes.

In the CA service charter, the duration envisioned for obtaining licenses is 120 working days. Though most respondents (also 51.8%) stated that they obtained licenses after more than three months upon submission of applications, this period was within the CA service charter period.

2.5.2 Urban versus Rural area Challenges faced by broadcast service providers

Broadcasters were asked to rate the challenges they perceive as the most constraining in achieving their service provision obligations and targets. The challenges include equipment, devices, content, technical expertise among others are presented in Figure 17.

Figure 17: Rating of challenges in service provision by broadcasters in rural and urban areas



From the presented results (Figure 17), the broadcasters cited high cost of establishing transmitter sites and operation as the most limiting constraints with 66% and 64% in urban and rural areas respectively. However, insecurity of broadcasting installations and costs of content provision; and the need for technical expertise were reported as barriers but less limiting constraints than capital and operational expenditure for establishing new sites. Though the findings could mean that technical skills for broadcasting are adequate in the country and also that the installations are secure, there are still areas where insecurity deters broadcasters from installing transmitter sites (e.g., Turkana County). Areas of insecurity could thus benefit from government intervention in terms of increasing security and subsidizing the cost of operating/ providing the broadcast services.

2.6 Key informant Interviews

Besides the quantitative surveys, key informant interviews were also conducted and the summary of the findings are highlighted for broadcast signal distributors, community broadcasters, commercial broadcasters and the national public broadcaster.

2.6.1 Key informant interview: Broadcast signal distributor (June 21, 2021)

The following are the findings from key informant interviews with signal distributors

1. Plans for expansion of your coverage area in the next five years

   Not possible to commit on expansion for 5 years. However, Meru, Voi and Bomet is planned for 2021/ 22; it is hard to predict beyond 2022 due to political uncertainty and economic situation; also COVID 19 is still a factor (BSD participant, June 21, 2021).

2. Key challenges faced in the effective signal distribution in both urban and rural areas

   Urban *- good with high population; makes business sense; however, there is power supply instability, signal interference, and high cost of fuel for generators*

   Rural *-*

   - *low population hence difficult to recoup investments; people do not want to pay in these sites; safety issues in maintaining the sites and need to liaise with government security agencies to reach these areas safely*
   - *Poor access to internet thus hard to get a signal from customers to broadcast, thus affecting live broadcast which is key to the sustainability of the services in rural areas*
   - *Power instability*
   - *License requires 24/7 service uptime and when commercial power is out there need to run generators which are expensive*

3. Strategies to enhance affordability of broadcasting services by the citizens?

   Reduce cost of provision of these services including license fees, spectrum fees, efficient technologies

4. Regulatory challenges for broadcast signal distributors

   a) Frequency and spectrum allocation:

   Process of acquiring frequencies and cost of spectrum; need time period to pay; interference from other providers; CA to deal with this more effectively.

   b) Regulatory compliance aspects and how they can be addressed:

   penalties are a big challenge hence the need for conversation to avoid conflict with CA; ...though there are obligations to roll out to rural communities, commercial considerations are necessary and need a win-win approach to compliance with this requirement for both government and BSDs

5. Measures that can be implemented to improve demand for broadcasting services?

   Ensure signal stability …religious are sustained by congregation; most channels do not make money; and if they do not then BSD does not; so how can the market be made profit generating?... Cost of service provision should be reduced: frequency fee, license fee then price will go down and more people would take yup the services thus improving demand…Content that is being broadcast should be improved

6. Addressing the need of People with Disabilities

   sign language interpreters; discounts to channels focusing on PWD; it is more complicated for radio service to PWDs

7. Who should operate infrastructure sharing?

BSD should operate shared infrastructure because signal distributors collocate with other service providers: the BSD are best placed to operate the shared infrastructure but need consultation with broadcasters in terms of citing of the transmitters

This interview suggests the need to improve content, reduce uncertainty of business in an election year, regulatory facilitation, address cost of provision of services in rural areas, need for financial support to roll out infrastructure in areas that are no economically viable.

2.6.2 Key informant interview: ICT sector Regular (May 17, 2021)

From the key informant interview with the Broadcasting sector regulator the following insights were obtained (Participant A: May 17, 2021).

How to improve the Broadcasting service experience to customers from a regulatory perspective

Delivery of content that is in line with needs of citizens … besides educational and entertainment, should refocus on economic activity e.g., fishermen, farmers; primary health care; …community broadcasting services to provide services that respond to aspirations of the community

Challenges experienced in regulating the Broadcasting services in respect to Universal provision

- *To get the licensees to contribute to USF; contention is that the USF does not focus on them*
- *Regular submission of compliance returns forms to assist CA identify areas of improvement*
- *Limited content that responds to identifiable needs of the community; too much gospel; entertainment rather than what can assist citizens; very little content on SMEs and farming …. not adequate*
- *Availing adequate spectrum resources to cover the extent of the need through expressed application FM in NRB and MSA is not available*

Projects for PWDs and other marginalized groups funded by USF

PWDs studies have been carried to identify connectivity needs….No ongoing project to address these needs; there is initiative to digitize education content for people who are visually impaired ….There are plans to refocus the USF to address PWD needs; in particular, there is an initiative by CA, KBS, ICTA to develop standards for access for PWDs …Lack of standards

Further, the following are findings from Participant B (Interview May 20, 2021):

Enabling access to devices for people with disabilities

Sign language interpretations are mandatory; smart TV with PWD accessibility are promoted; close captioning; PWD accessibility access mechanism mandates for licensee but enforcement to needs commence: circular sent to broadcasters and gazettement done; basic services broadcast (news and public interest content) should be accompanies by sign language

Broadcasting content in Kenya from a regulatory point of view and areas of improvement

Production of relevant broadcast content; genres, local content production; we need local content not only foreign content…strengthen consumer awareness and training on programming code and broadcasting standards

Trajectory for multimedia services in the next 2 - 5 years

Change from linear to nonlinear TV technology; currently TV broadcasters have websites on live streaming; ICT sector will impact broadcasting; Interactive TV to enable talking to TV…Content monetization e.g., watch yesterday's content today …Niche programming from general programming e.g. sports, music, comedy, action movies… With AI we have TV as aggregators - TV picks content and presents to the viewers

Plans for rolling our Digital broadcasting for sound?

- *Technology is ripe for FM analog to digital however, cost of devices needs to be addressed - digital radio; need for mass production radios*
- *Spectrum adequacy fully allocated and demand is very high; thus digital FM will avail spectrum*
- *People migrating from digital and add in mire value; focus should be on value adds*

Plans for rolling out 5G technology

5G will support nonlinear TV, AI, IPv6, big data and robotics.

From a regulator perspective there is need to address the broadcast service needs of PWDs, promote relevant local content production, enforce compliance with license conditions, develop broadcasting standards for PWDs, promote technology innovation including non-linear programming, and migration to digital audio broadcasting.

2.6.3 Key Informant Interview: Commercial Broadcaster (13th June 2021)

According to the key informant interviews comprising broadcast service providers, the following challenges were identified. The following (Table 6) is a summary of the responses during key informant interviews which corroborate what was obtained from the quantitative survey.

Table 6: Challenges faced by commercial broadcasters

SN	Challenge	Comment
1	Expensive infrastructure to roll out services to remote rural areas	The remote areas do not have necessary infrastructure to easily support the roll out of broadcasting facilities. There is lack of roads, electricity and telecommunications equipment and services
2	Economic viability: Inadequate advertising revenues affects all broadcasters	This is particularly the case in rural remote areas
3	Frequent power failures	This is affecting all the broadcasters including in the urban areas, where most broadcasting studios are based where there are power outages are common. This also extends to the transmitter sites which are spread across the country.
4	Expensive local content	The production of local content is expensive especially in the television broadcasting leading to acquisition of cheaply available foreign content (TV: KES 600,000 to 800,000; Radio KES 150,000 per episode)
5	Not profitable to operate a broadcasting service in some areas	This problem is experienced by all broadcasters when expanding to remote areas
6	Spectrum	The main area of spectrum barrier is in FM radio broadcasts in the major urban areas including Nairobi and Mombasa where the spectrum is fully allocated.
7	Inadequate Government Funding	The public broadcaster is not receiving sufficient government funding to enable it meet its universal broadcasting obligation (FM Radio 4billion; TV: four sites 400 million)
8	Physical access to sites	Road network is unavailable to some locations with insecurity in some remote locations including Turkana and north eastern Kenya hinder roll out of services to these areas
9	Devices and equipment	Further, profanity delay (TV: KES 800,000; Radio: 200,000) and studio logger equipment (TV: KES 200,000; Radio: KES 150,000) are expensive and this hinder the effective broadcasting especially the community broadcasters
9	High production costs of local content	Most local producers are unable to market their content due to depletion of resources. The high costs of production also demotivate them from availing content for access by the alternatively-abled population

2.6.4 Key Informant Interview: Independent content provider (16th June, 2021)

As media diets change, so does the need for available, quality and relevant content become mainstream. To ensure that there is sufficient demand for broadcasting services content creators should continually create content that attune to the societal needs of the day. Such content should take into account factors such as cost, audiences, diversity, quality and sustenance. For a functional broadcasting ecosystem, content that is available, affordable, relevant and of quality is imperative. There are challenges facing content production in Kenya hence the need for interventions.

1. Challenges in production of content

(a) Getting local content

"We do not have adequate funding or access to funding. Producers are left to source for funding e.g. taking loans. 99% of producers are waiting for their phones to ring and be given a job. We have very few risk takers as there is no guarantee on return on investment" (Key informant, June 16 2021)

(b) Broadcasting (airing) content

"About broadcasters, we feel there is some form of double speak. They compare our content with Mexican soaps which are sold not to recoup investment but rather sold after they have made money. When we try to match that, it is very costly. We have equipment, talent, venue which have cost implications. A few package for $2,000 or Kshs. 30,000 per episode which is not even salary for my crew member for six months. So, we are speaking different languages" (Key informant Interview, June 16 2021)

2. Restrictive regulatory aspects that affect content production

One key informant stated that …

"To be fair, I'd say regulation does not interfere with our ability to produce. There may be some difference of opinion with Kenya Films Commission on content classified as adult film e.g. 'Rafiki' directed by Dr. Wanuri which should not be banned on the basis that it is LGBT specific. Artistic expression should be free or liberal. Let adults decide what they want to watch. Ban content that promote crime. Our screens are full of content on LGBQT, CSI on DSTV GoTV- women making out, people killing each other – I don't understand this doublespeak"

3. Content availability and affordability

"One of the greatest challenges in production is that shooting is expensive. Put a price -broadcasters do not want to pay. When we get sponsorship that includes product placement in your films, broadcasters want to charge you because you are advertising. For example, I once put up a sitcom for brookside-for branding- I was being charged Kshs. 650,000 to air a 30-minute film in 2001. I had to incur the cost of production and to also pay for broadcasting" (Key informant interview June 16, 2021).

3. Relevance

On the relevance of content and informant stated that

"The small clips on social media contain mannerisms that Kenyans can immediately relate to. Most however cannot be exported to other markets. Content

creators should identify how far and wide they want to sell their content then create content that can be received across markets" (KII, June 16, 2021).

4. **Social Media and Broadcasting Outreach**

"Around 2013/2014, I wrote to CA to get permission to start Ronga TV; the first online TV. I was given a letter saying we are still in the process of understanding OTT. I was given green light as laws and policies were being made. Issue came on getting content form Kenyans. We have a culture of mistrust. Content producers wanted payment upfront for their content but the same guys are signing payment terms with Iroko (Nigeria). For Kenyan platform, zero. Now I see Safaricom has their, viusasa. We cannot build the industry if we base everything on mistrust. If your friend was hosting an event, you'd rather attend on a free-ticket than pay KES 1000 for a ticket. Yet, Tanzanians are willing to pay or buy CDs because it is Diamond performing. In Kenya, we want to download. We need a lot of regulation on copyright" (KII, June 16, 2021).

5. **Protection of IP**

"This is very ineffective for independent content providers. We have matatus on our roads playing music on flash disks. It starts on enforcement…. if you want to play that music, show us the source" (KII, June 16, 2021).

6. **Production Costs**

According to a key informant the*re are three main processes in video production. The fourth one is marketing and distribution - pre-production, production and marketing*

Pre-production. *Includes research, coming up with the creative content, brainstorming to come up with the scripts.*

It also includes getting the license to shoot; Kshs. 15,000 by KFCB, Kshs. 1,000 for every single day you are shooting and venue. Where are you shooting? Each place has a filming fee. For example, Kajiado County charges Kshs. 150,000 per day while Machakos County is free. So, if you are to shoot a love story in Kajiado for 3 days, you pay Kshs. 450,000. If you are on Mombasa road and point the camera towards Machakos, it is free, when the camera is pointed towards Kajiado it is $1,500 per day.

This is money I should have before paying the cast, talent and crew.

Production. *This is where costs are on a daily basis. For talent, you can have a contract or per-day arrangement. Crew is a no brainer; each crew has its fee. Then the daily costs which are inevitable including food, drinks, PPEs, batteries.*

Post-production. *This is where you will sit and go crazy. Includes editing. Sorting of music produced and sourcing for royalty music from various libraries. And this is where we run short. On final grade, 'utamu inawekwa kwa sinema'. We started but many films are released here. Some are taken to India.*

At marketing stage, there are no funds. In other countries there are funds for post-production/ marketing. Most of these finishing funds you will find have government help. With a finished film, you can make technical assessment or preview. Risk is high when funding a script compared to funding the marketing thus most producers are funded post production in these other jurisdictions.

7. **Content Classification**

"Immorality is relative. KFCB looking at your script and saying it is immoral and banning it before production is a concern. If you take Titanic for example, the script and the film are different. In the script, the steamy love scene is described in detail while on screen, there was no body expose. It was so artistically shot because that is how the director interpreted. The Board (KFCB) should not give an adult only classification and thereafter refuse to license on the basis of the written script. They should wait for the finished film to make a determination on classification" (KII, June 16, 2021).

8. Special interest groups

When whether content producers' content is packaged in formats accessible by alternatively abled persons e.g. PWDs, underserved and unserved areas, the response was:

"To be very honest, we do very little in that regard because inasmuch as we are moving toward an all-inclusive world, we are not conditioned that in our minds, we can do subtitles but we tend to prefer the low-hanging fruits. We also don't think of those far and remote areas. We look for markets that sell. Why would you look at North Horr? unless you are an NGO…,

CA in conjunction with KBC can create specific channels for airing African films. It actually exists. So, instead of me thinking of reaching Mandera, my concern is how much can KBC pay me so that they broadcast my content. What is the offer so that I can give them my content?' (KII, June 16, 2021)

On the Kenya Films Commission, the way it is working, I don't think it is geared toward content generation. They are focusing on training and sensitization. It is very easy to get money to conduct training and sensitization programs for two million youth who have no money to produce. Is this putting the cart before the horse or what?" (KII, June 16, 2021)

9. Suggestion on improvement of content

To the question of what should be done to improve content production, a key informant suggested …

"Go back to the law, find this money, unlock the money, let artists create content then do training and sensitization. Funding, marketing and distribution is our biggest challenge. CA can come up with its own platform, hook it up with payment systems and have subscriptions. Like a marketplace accessible at a fee allowing upload of content and viewership with a revenue sharing model for content creators". (KII, June 16, 2021)

2.6.5 Community Broadcasting Services:

Community broadcasters play an important role in socio-economic development of communities that they serve. They serve the population whose concerns rarely receive attention in other forms of media. Their broadcasts are for information, news, education and entertainment. There are currently 40 FM radio and 10 TV community broadcasters.

According to an interview that was conducted (June 9, 2921) with community broadcasters key informant, these broadcasters benefit society by promoting peaceful coexistence and improving security through sharing of information; they also have opportunity to be sustainable by focusing on their core mandate and effectively engaging community leaders. However, they experience challenges including unreliable power supply and expensive equipment (station logging and profanity delay) and signal interference. The following is the finding of a key Informant Interview: Community radio stations (June 9, 2021):

To the question "What are the socioeconomic benefits of your community broadcasting stations?", one community radio station participant explained that:

> *Development is a communication; communication, dialog and agreements; there must a platform for community engagement; e.g., Koch FM people in Korogocho were being asked to pay repair fees for houses Kituo cha Sheria provided lawyers and the illegal fees was stopped … The landlords then upgraded the informal dwellings…Improved the level of security in the slums and crime can be reduced e.g., in Korogocho …. building cohesion and peace in communities*

Regarding the challenges that community broadcasting stations encounter, a participant reported as follows:

> *Interference on frequency e.g., Koch FM and KU…Sustainability of a community radio station … politicians abuse community radio stations if they are underfunded and can abuse the community broadcasting for own parochial ends*
> *Compliance requirements of KES 2000 per journalist; KES 10,000 for station; expensive logging equipment and profanity delay…frequent power outages*

In the opinion of a key informant from the community radio and television broadcasting stations, these broadcasters

> *"are viable if they are premised on principles of community ownership, community content, and employees are the communities; are not for profit…The concept of community broadcasting has not been entrenched in the exiting CRS; they commence with a commercial lens and end up failing" (KII, .June 9, 2021)*

The benefits of community broadcasters are shown in Box 1.

Box 1. Benefits of Community broadcasters

- Promotion of peaceful co-existence of different communities residing in the same geographical location. This ensures that the digest communities can engage in role can be enhanced to attract users of the services at a fee to support non-profit operational running of the broadcasters
- Programmes on how to maintain high levels of sanitation and hygiene thus promoting a health population which can be engaged in productive economic activity. Some of the income so generated can be used to sustain the station through subscription or episodic payments
- Formation of savings and credit co-operative society by community listeners and presenters enabling them to save and borrow at affordable interest rates
- Formation of community listeners' welfare groups that are taking care of common issues affecting the community
- Access to information and the bonding that the radio creates within the local community. The networking provides socio-economic opportunities for the community who can then contribute towards the sustainability of these stations

Further, the challenges faced by community broadcasters is as follows:

i. High cost of profanity delay, studio logger and bandpass filter equipment; an example of regulatory compliance challenge (a case of Pakistan) experienced when a studio logger is unavailable shown in Box 7
ii. The operation is not sustainable in most cases (FM Community radio: Establishment: KES 15,000,000; Operation: KES 2,000,000 per year; Community TV: Establishment: KES 25,000,000)
iii. Frequent commercial power failure
iv. Signal interference from other stations
v. Shortage of adequately trained staff and frequent staff turnover (after getting enough experience staff move to mainstream media).
vi. Broadcast frequencies are fully allocated in the urban areas hence unavailable to community broadcasters

Box 2. Specific Example of Lack of Logging Equipment and Consequences

According to a report by Radiotoday.co.uk of 21st July 2021, Link FM a community radio station in Pakistan was found guilty for not logging all the station output for the stipulated 42 days. Their defense was that they were carrying out maintenance on their computer system when the actual complaint issue was being broadcast. Normally in a broadcasting station you will have a standby facility for sensitive areas to take over when carrying out maintenance or incase of a failure of the main equipment. We can infer that Link FM did not have the capacity to have a standby facility.

The specifics of cost challenges faced by community broadcasters are as follows:

- License fee (FTA Radio: Application fee: KES 1,000, Initial license fee: 15,000, Annual operating fee: 15,000 p.a.; FTA TV: Application fee: KES 1,000, Initial license fee: 30,000, Annual operating fee: 30,000 pa)
- Cost of profanity delay equipment is expensive for community radio operators (TV: KES 800,000; Radio: 200,000)

- Cost of logging equipment is high for community radio operators (TV: KES 200,000; Radio: KES 150,000)
- Other fees such as MCK (KES 2,000 for journalists), and KFCB fees (KES 12,000 annual agency renewal fee, and KES 1,000 filming fee for every day of shoot) are also perceived to be high
- Frequent power failures such as in Meru and Kibwezi

Based on the survey and interview, community broadcasters are important for socio-economic development though they experience sustainability, cost of equipment and regulatory compliance, signal interference and unreliable power supply challenges; awareness of the role of community broadcaster needs to be created.

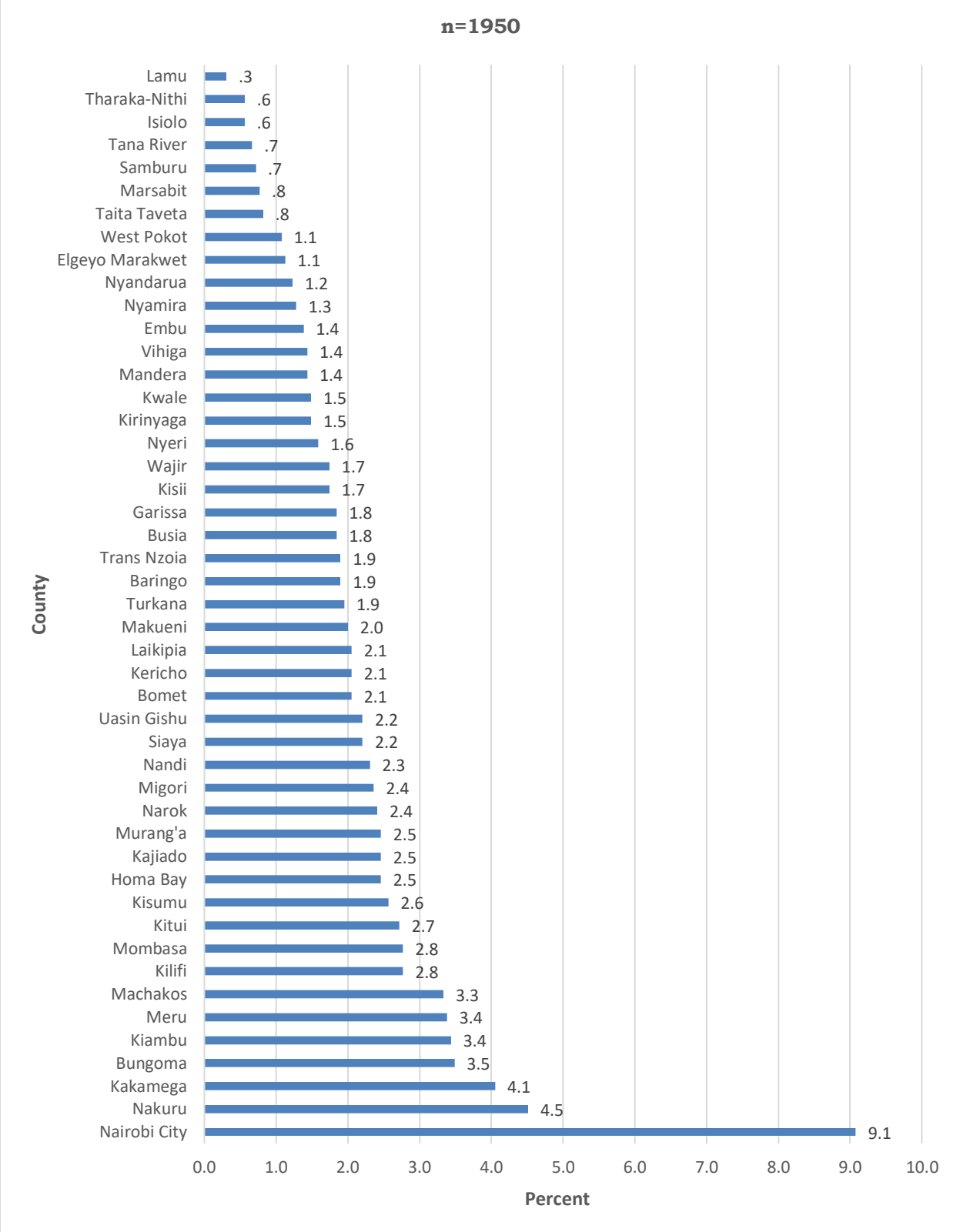
3. DEMAND SIDE

Data was collected from 1950 respondents (see Annex IX) from 302 representative sub-locations across the 47 counties. Results on the distribution of respondents per county based nature of broadcasting services accessed, service devices, programming, content and quality of service are presented.

3.1 Demographics

This survey covered consumers from all 47 counties in Kenya who were drawn from representative sub-locations from each of the counties as presented in Figure 18. A response rate of 97.2% (n = 1950) was achieved for consumers of broadcast services. This response was satisfactory for describing broadcast services from the perspective of consumers.

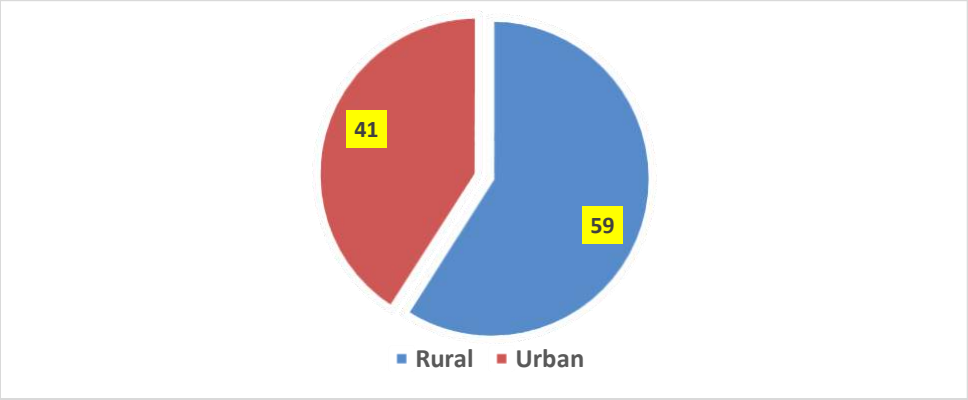
Figure 18: Household response by County



As shown in Figure 18, 9% of the respondents were from Nairobi City County followed by 4.2% from Nakuru, and 4.1% from Kakamega county. The rest of the responses were distributed across the other counties. The distribution of responses fairly reflects the population distribution of the counties where Nairobi has the highest percentage of the sample.

Responses by location of respondents. The sub-locations were further categorized into either urban or rural based on the 2019 census data.

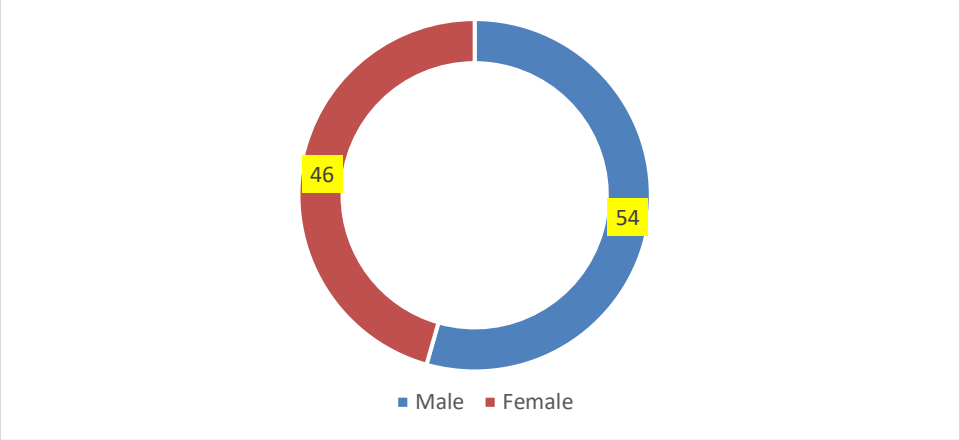
Figure 19: Response per Category of Sub-location



Results in Figure 19 indicate that majority of the sub-locations surveyed were rural 59% compared to 41% that were urban.

Gender. The distribution of respondents by gender is presented in Figure 20.

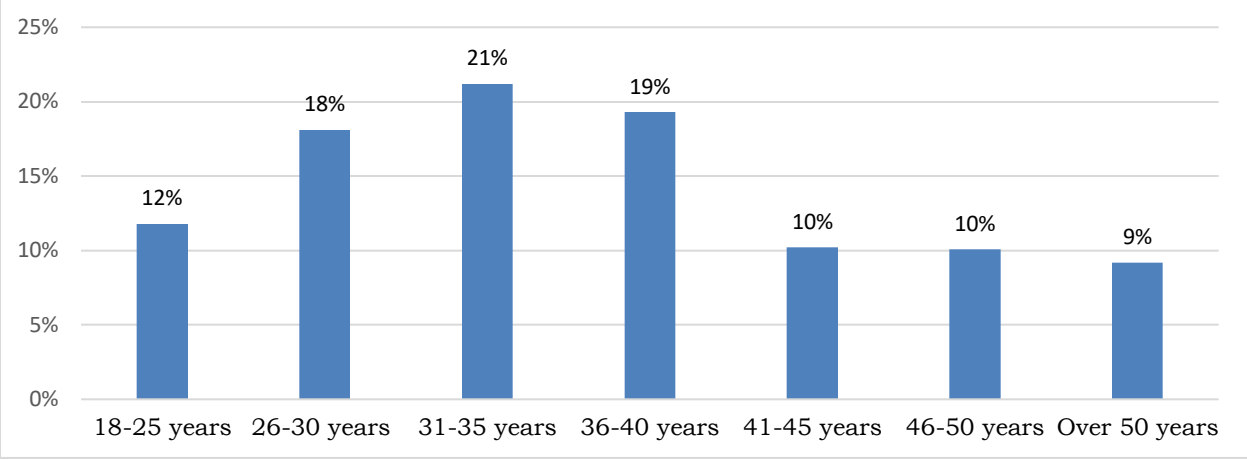
Figure 20: Gender of respondents



The gender distribution of service provider respondents was 46% female and 54% male. This shows that there was a fair representation by gender in the sample. Majority of respondents were aged 26 - 40 (58.6%) Respondents who were aged 18 - 25 old were 11.8% while 41 and above were 29.5%.

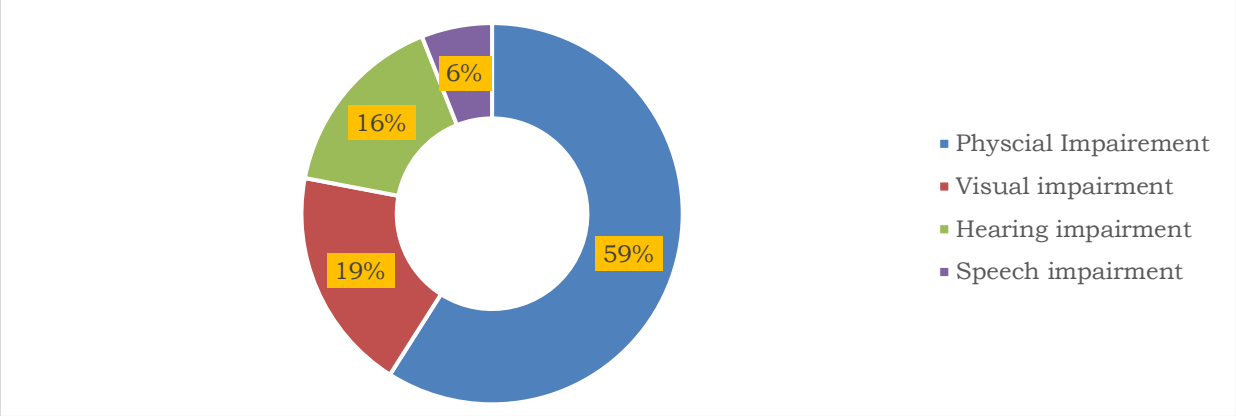
Age. The age of respondents is shown in Figure 21.

Figure 21: Age of Respondents



Nature of disability. Data was collected to determine the nature of disability of that the respondents was having and the result is presented in Figure 22.

Figure 22: Type of impairment



Out of all the respondents that were surveyed 3.1% (n = 64) had some form of disability. Out of the 64 PWDs, 59% were physically impaired, 19% visually impaired while hearing disability accounted for 17% (n=153,361) in terms of the trend - from highest prevalence to the lowest. However, the proportions were different from this survey sample because though physical impairment was the most prevalent, followed by visual impairment, the difference in numbers was not as large as was found in the surveyed sample (e.g., Percentage difference between physical and visual impairment: 2019 census: 6%; survey data: 40%).

3.2 Access to television broadcasting services

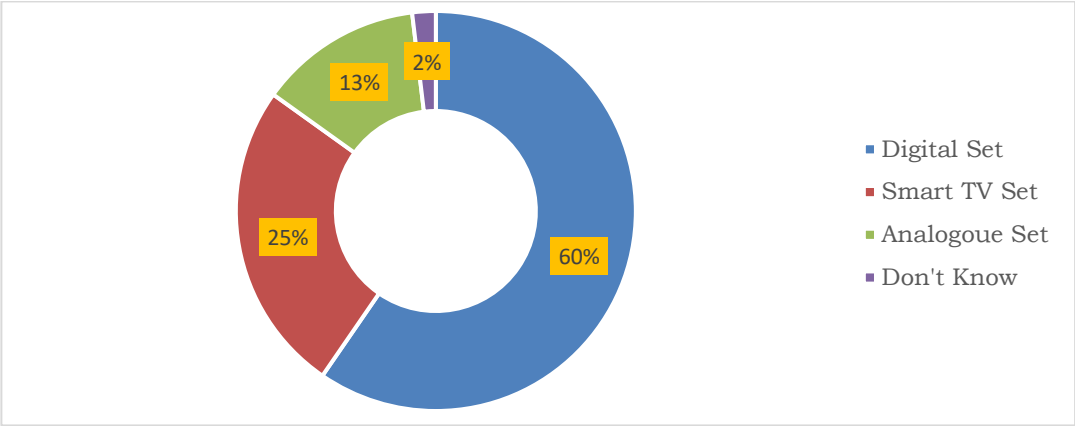
Access to TV services is important for socio-economic development. The access depends on availability of affordable services, signal coverage and subscription fee for paid broadcast services.

3.2.1 Access devices, by location, and by gender

Ownership of TV receiver devices. Out of the 1950 respondents that were surveyed, the proportion of respondents that indicated to own TV in their households or business premises were 75.2%. Out of the 24.8% that did not own a TV set, 72.7% indicated that they could not afford TV sets due to high cost while 16.3% indicated that owning a TV was not necessary to them. The remaining 11% did own TV due to unavailability of electricity in their homes.

Type of TV receiver devices. The distribution of TV devices owned by respondents are as shown in Figure 23.

Figure 23: Type of TV sets owned households to access TV



From the result (Figure 22) 59.6% of respondents owned digital TV sets followed by 25.3% that owned Smart TV sets. Analogue TV sets with set-top boxes were the least (13.2%). This trend is attributed to the transition from analogue to digital broadcasting. Further, the respondents who did not own TV accessed TV services from social centres.

TV ownership in rural and urban areas. Analysis by sub-location category of respondents indicated that TV ownership in rural and urban areas was 69.6% and 83.2% respectively. The distribution of TV sets per sub-location category is shown on Table 7.

Table 7: Type of TV set used by category of sub-location

Sub-location category	Type of TV set				Total
	Analogue Set	Digital set	Smart TV set	Don't Know	
Rural	15.8%	63.0%	19.3%	1.9%	100.0%
Urban	10.1%	55.5%	32.6%	1.8%	100.0%
Total	13.2%	59.6%	25.4%	1.9%	100.0%

Chi square (x^2 = 40.048, p = 0.000, Cramer's V= 0.160)

As shown on Table 7 the use of analogue TV sets was reported more in rural than in urban areas (Rural: 15.8%; Urban: 10.1%). Conversely, the use of smart TV was high in urban area compared to rural areas (32.6% and 19.3% respectively). This data implies that use digital TV devices was higher in the urban areas. There was a statistically significant difference between type of TV set used and whether the sub-location is rural or urban area. The strength of association between type of TV set used by consumers and the category of sub-location (urban vs rural) was strong (x^2 =40.048, p< 0.218, Cramer's V = 0.160). This result implies that there are fewer smart TVs in rural areas than there are in urban area (rural; 19.39%, urban; 32.6%)

Ownership of Set top boxes. In order to receive a digital signal using an analog TV set, set-top boxes are required. Figure 24 shows the proportion of households using set-top boxes.

Figure 24: Proportion of households using Separate Set top boxes.

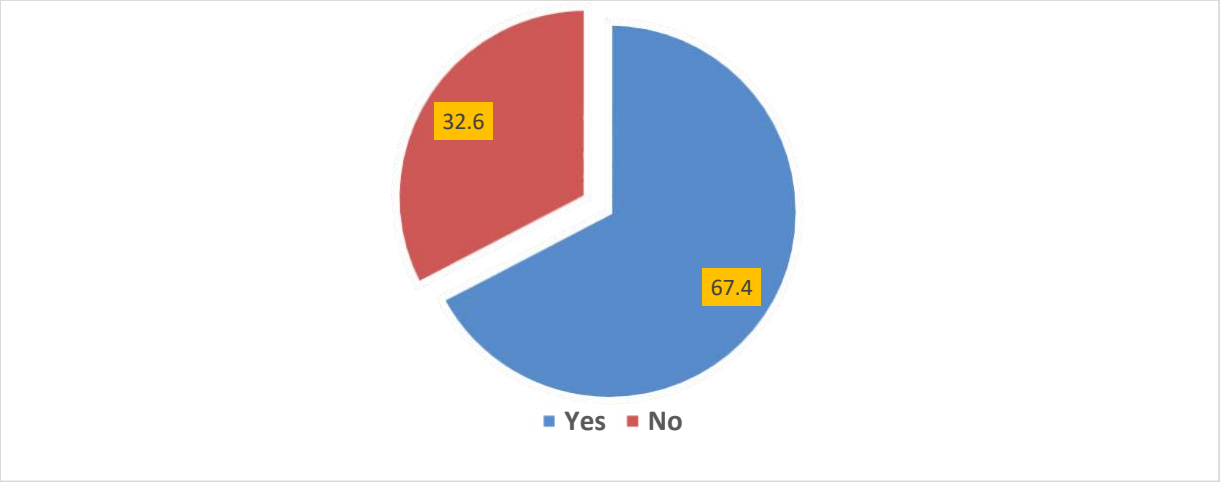
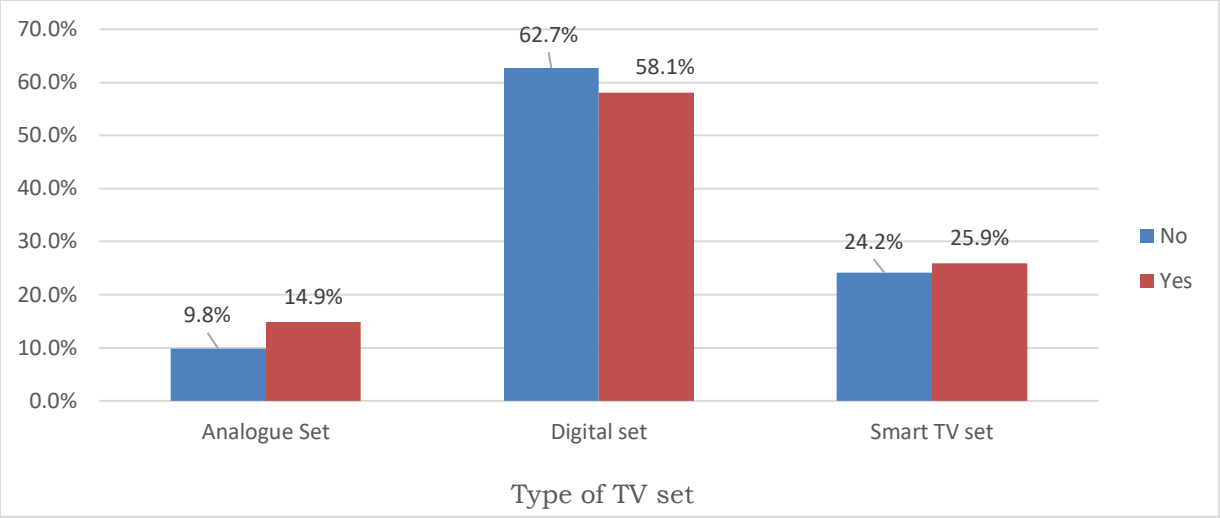


Figure 24 shows that 67.4% of households have separate set top boxes compared to 32.6% who do not. This implies that there are set-top boxes in the homes that are no longer useful because consumers have acquired smart/ digital TV sets; this is corroborated by the result in Table 7 where the ownership of Smart and digital TV is 82.3% (Rural) and 88.1% (urban). Those that did not have set top boxes stated that the price of these devices was high (38.6%) whereas 7.5% indicated the set top boxes were not available in their location. This result shows that since migration from analog to digital (2015/2016) some population is excluded from broadcast services due to high cost of set-top boxes and unavailability of these devices (7.5%). This finding is consistent with the findings on the price of set top boxes where 56.3%, stated that the set top boxes were expensive while 43.7% indicated the price was just right.

Type of TV and ownership of set-top box. The ownership of set-top boxes by TV type owned by consumers is presented in Figure 25. It is noted that some consumers with digital/ smart TV also owned set-top boxes.

Figure 25: Ownership of set-top boxes by type of TV set

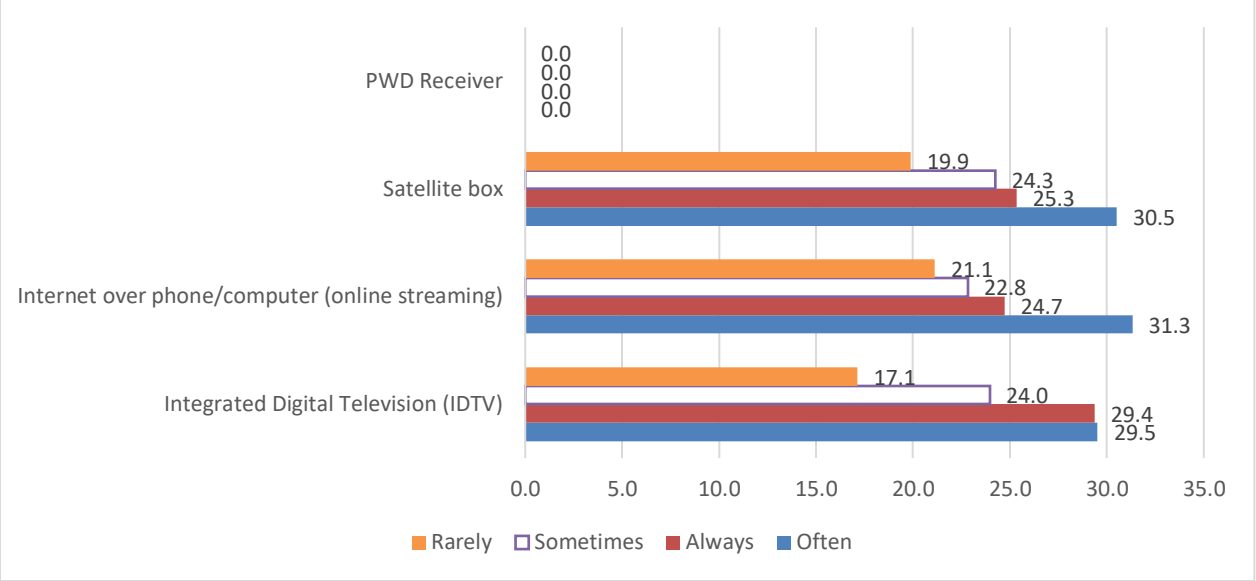


The result in Figure 25 shows that out of the 32.6% (Figure 24) households that did not own set-top boxes, 62.7% could still be able to access TV broadcast services using iDTV sets, 24.2% could access using smart TV sets while only 9.8% of the 32.6% (Figure 24) could not access the TV broadcast because they had analogue TV sets but without set-top box. Since there were consumers with smart/ digital TV as well as set-top boxes, these boxes need to be disposed of in an environmentally friendly manner because they now constitute electronic waste.

Further, out of the 67.4% (Figure 24) of households that owned set-top boxes, 84% (Figure 24: Digital TV: 58.1%; Smart TV: 25.9%) used them to access pay TV content in addition to free-to-air service which they could receive on their iDTVs and smart TVs while 14.9% (Figure 25) used them to receive digital TV signal on their analogue TV sets.

TV access options. Apart from the Set Top box that enabled analog TV set to receive digital broadcast signal, and the proprietary decoders (referred to as "set-top box" by respondents), the study also assessed the frequency of accessing TV using the various other available devices; the result is presented in Figure 26. From this figure, it is noted that no PWDs specific devices were reported.

Figure 26: Devices to access TV



In addition to the TV broadcast access options in Figure 26, access by analog TV with set top box was 10% (n = 196).

According to the result (Figure 26) the most used mode of access was iDTV (58.9%), followed by online streaming over mobile phone over computer (56%), then satellite (55.8%) and lastly analogue + set-top box (10%). These results agree with the GeoPoll Audience Measurement (GAM) survey of Q1 2021[16] where Television viewership was predominantly through TV set followed by phone viewership. There is scarcity of devices for use by PWDs hence the need for interventions to avail them. Furthermore, since there were no reported devices for PWDs, it is proposed to make Smart TVs with audio description (narrators for the visually impaired), close captioning (for the hearing impaired); available sign language to other programs beside news and national importance programmes. Consequently, audio description of pictures for visually impaired persons and close captioning capable devices should made readily available to enable access to services.

TV Access using mobile phone by sub-location category. The comparison of TV access devices in urban or rural area is shown in Table 8.

Table 8: Use of Mobile phone to access TV by sub-location category

		Frequency of use of Mobile phone to access TV				Total
		Rarely	Sometimes	Often	Always	
Sub-location category	Rural	15.60%	16.50%	45.70%	22.20%	100.00%
	Urban	20.30%	18.40%	36.60%	24.60%	100.00%
Total		17.80%	17.50%	41.30%	23.40%	100.00%

Chi square (x^2 = 7.200, p= 0.066, Cramer's V= 0.096)

[16] https://www.geopoll.com/blog/q1-2021-media-stats-kenya/

According to the results, there was no significant difference (p> .05) between rural and urban areas on the use of mobile phones to access TV. However, this mode was more widely used in rural than urban areas though the difference was not significant. This result shows that where one is located - rural or urban - does not determine the use of mobile phone to access TV broadcast. In other words, the use of mobile to access TV is independent of the sub location (urban or rural sub-location) of the consumer. The trend can be attributed to improved affordability of mobile devices, the growing innovation of online streaming services by broadcasters and the affordability of internet among other reasons. A test of association indicates a weak association between use of mobile phone for TV and category of sub-location (x^2 =7.200, p = 0.066 > 0.05, Cramer's V = 0.096).

Online streaming. Table 9 shows results on the use of online streaming to access TV broadcast services by sub- location category

Table 9: Use of online streaming to access TV by sub-location category

		Internet over phone/computer (online streaming)				Total
		Rarely	Sometimes	Often	Always	
Sub-location category	Rural	22.7%	33.2%	23.1%	20.9%	100.0%
	Urban	19.4%	29.2%	22.5%	28.9%	100.0%
Total		21.1%	31.3%	22.8%	24.7%	100.0%

Chi square (x2 = 4.747, p = 0.191, Cramer's V = 0.095)

A greater proportion (28.9%) of TV viewers accessing TV through online streaming was reported in the urban areas compared to 20.9% in the rural areas (Table 9). This can be attributed to the availability of high-speed internet in urban areas which supports online streaming. There was no statistically significant difference between online TV streaming and the sub-location category. The strength of association between online streaming of TV content and category of sub-location was weak (x^2 = 4.747, p = 0.191, Cramer's V = 0.095) and insignificant which indicated that online streaming was independent of the sub-location category.

Use of online streaming access by gender. In the following table (Table 10) the comparison of the use of online streaming of TV broadcast by gender is presented.

Table 10: Use of online streaming to access TV by gender

	Internet over phone/computer (online streaming)					
		Rarely	Sometimes	Often	Always	Total
Gender	Female	21.0%	29.5%	27.1%	22.4%	100.0%
	Male	21.3%	32.5%	20.0%	26.3%	100.0%
Total		21.1%	31.3%	22.8%	24.7%	100.0%

(x^2 = 3.965, p = 0.265, Cramer's V = 0.086)

Access to TV broadcast through online streaming was slightly higher in females compared to males. As shown in Table 4, females (49.5%) and males (46.3%) either often or always used online streaming to access TV broadcasts. However, more men than women (men: 26.3%; women: 22.4%) "always" used online streaming. There was no

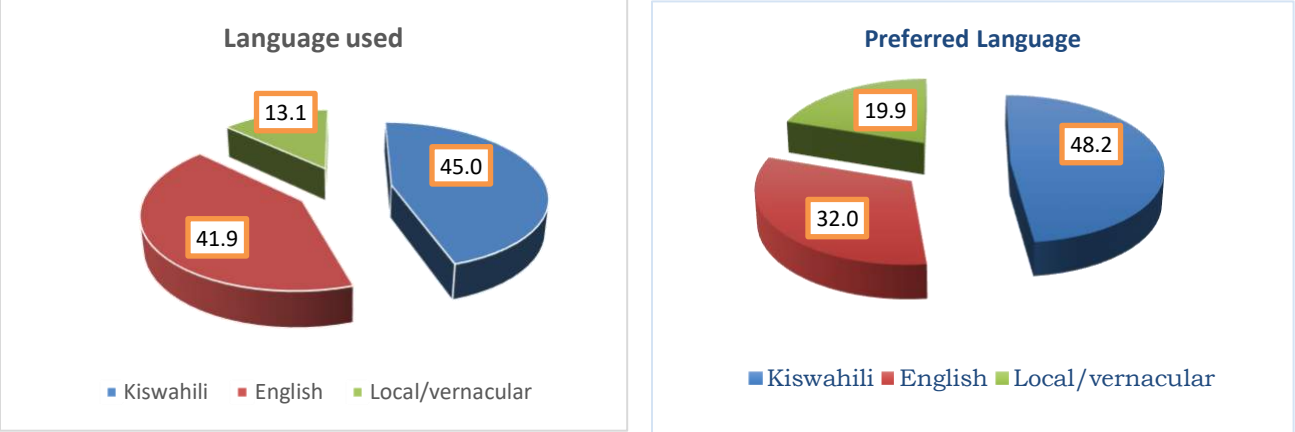
statistically significant difference between access by online streaming of TV across gender. online streaming was weakly associated with gender ($x^2 = 3.965$, $p = .265 > .05$, Cramer's V = 0.086).

3.2.2 TV Programming

Broadcasting service is provided using various languages both at national and local/ community levels. At national level, both English and Kiswahili are used while various Kenyan languages are used in counties.

Language used in TV Broadcasting. In this survey data on the language that was used in broadcast services and the audience preferred language for TV broadcast, as well as TV programming in Kenya was collected to determine viewer preference. (Figure 27)

Figure 27: Languages used by TV Broadcasting stations



Results in Figure 11 indicate that Kiswahili was the most used language for broadcasting by TV stations followed by English. Similarly, Kiswahili was the most preferred language by viewers. Further, more broadcasts in local/vernacular are needed (current broadcast in local/ vernacular: 13.1%; preferred broadcast in local/ vernacular: 19.9%). There was a 6.8% gap between what was preferred for local/ vernacular and what was agreed.

3.2.3 Quality of TV Broadcast Signal

For the purpose of this survey, "poor" implies signal strength is not adequate resulting in unclear picture and inaudible sound; the consumer is not able to comprehend what the broadcast is about most of the times. A "fair" signal quality is where the listener and viewed of the broadcast can comprehend the content being broadcast albeit with some difficulty; the reception is moderately understandable. A "good" broadcast signal means that the broadcast content is clear when viewed (picture) and listened (audio).

The perception of the quality of TV broadcast signals by consumers by sub-location category is presented in Table 11.

Table 11: Quality of TV broadcast signal by sub-location category

		Provide your assessment of the quality of TV broadcast signal			Total
		Fair	**Good**	**Poor**	
Sub-location category	Rural	28.0%	61.3%	10.7%	100.0%
	Urban	23.8%	71.2%	5.0%	100.0%
Total		26.3%	65.4%	8.4%	100.0%

(x^2 =28.145, p = 0.000, Cramer's V = 0.121)

Viewers in rural areas were less satisfied (61.3% satisfied) with the quality of TV broadcast signal compared to viewers in urban areas (71.2%). The results indicated existence of a statistically significant difference in quality of TV broadcast signal between rural and urban sub-locations since the test of association between signal quality and location of the customer was significant (x^2 =28.145, p < 0.001; Cramer's V = 0.121). There is thus need to improve the quality of TV broadcast signal in rural areas and in parts of urban areas by improving the service coverage and signal strength. The signal quality gap is higher in rural areas compared to urban areas (rural gap: 38.7%; urban gap: 28.8%)

3.2.4 Quality of TV broadcasting services

The quality of broadcasting service was assessed across three ratings: poor, fair and good. The quality of service implies appropriateness of programming, timing of the programme, and content of the programme. In this regard poor service quality was where there was inappropriate progamming, time of the programme and the content in the programme while fair quality of service is when the three attributes are moderately satisfactory. Any of the three attributes affect the consumer assessment of quality of broadcast service. A good service is perceived when all the three attributes are satisfactory, that is when programming, timing and content are appropriate

Quality and gender. Table 6 shows the perception of the quality of TV broadcast service by gender.

Table 12: Perception on the quality of TV broadcasting by gender

		Provide your assessment of the quality of TV broadcast services			**Total**
		Good	**Fair**	**Poor**	
Gender of the respondent	Female	65.00%	25.70%	9.30%	100.00%
	Male	65.70%	26.80%	7.60%	100.00%
Total		65.40%	26.30%	8.40%	100.00%

(x^2 =1.940, p= 0.379, Cramer's V = 0.032)

The rating by male and female was almost the same with those rating the quality as being good at 65.0% for female and 65.7% for male (Table 6). There was no statistically significant difference in the perception of quality of TV broadcast service cross gender.

(x^2 =1.940, p > 0,05; Cramer's V= 0.032). It is concluded that the perception of TV broadcast service quality is independent of gender. it is homogeneous across gender

3.2.5 Content TV broadcast

The various services accessed by consumers are presented in Figure 28. They include sports, kids' programs, televangelism, advertisement, education and information among others. The majority of consumers accessed news and information services-(88.6%) followed by general entertainment (78.8%): it is noted that the respondents were free to choose as many as the services as they wished hence percentages that add up to more than 100%.

Figure 28: Preference of content accessed using TV

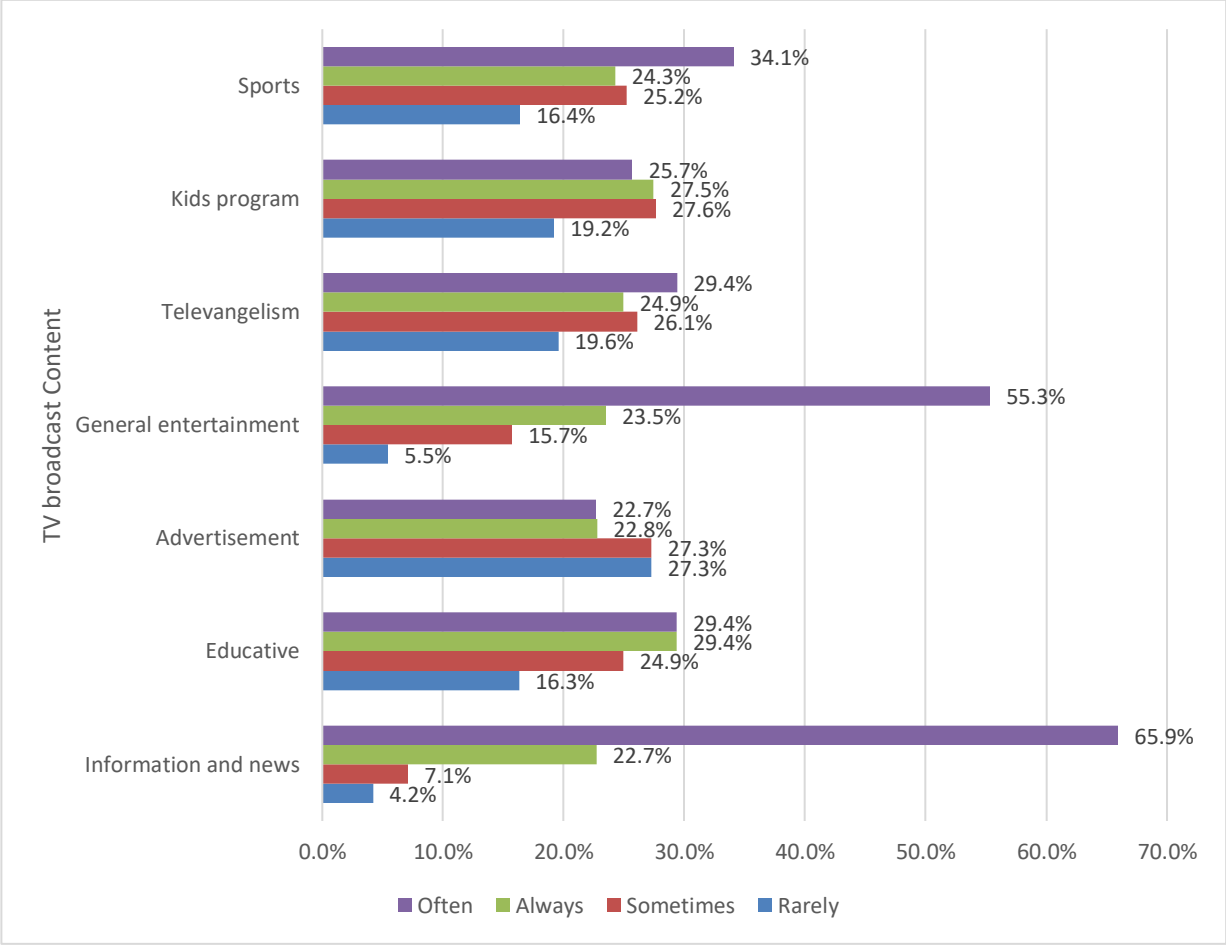


Figure 28 shows that majority of consumers either "always" or "often" used TV to access information and news (88.6%), followed by those that used it for general entertainment (78.8%). The least content accessed on TV included advertisement (45.5%) and kids program (53.2%). It is also noted that there was an almost equal distribution of access to education (58.8%), and sports (58.4%). From the qualitative key informant interviews, one participant indicated that "there is too much gospel rather than content useful to a fisherman or a farmer in the village". (KII, May 17, 2021)

With regard to the appropriateness of content, it was noted that there is in inadequate relevant local content hence the need for:

> *"Delivery of content that is in line with needs of citizens … besides educational and entertainment, should refocus on economic activity e.g., fishermen, farmers; primary health care; …community broadcasting services to provide services that respond to aspirations of the community" (Interview Participant, May 17, 2021)*

This finding shows the need to promote production of content that has socio-economic impact such as on food production, education, technology innovation, manufacturing, environment protection, health, water and sanitation, peace-building and security.

3.3 Access to Radio Broadcasting Services

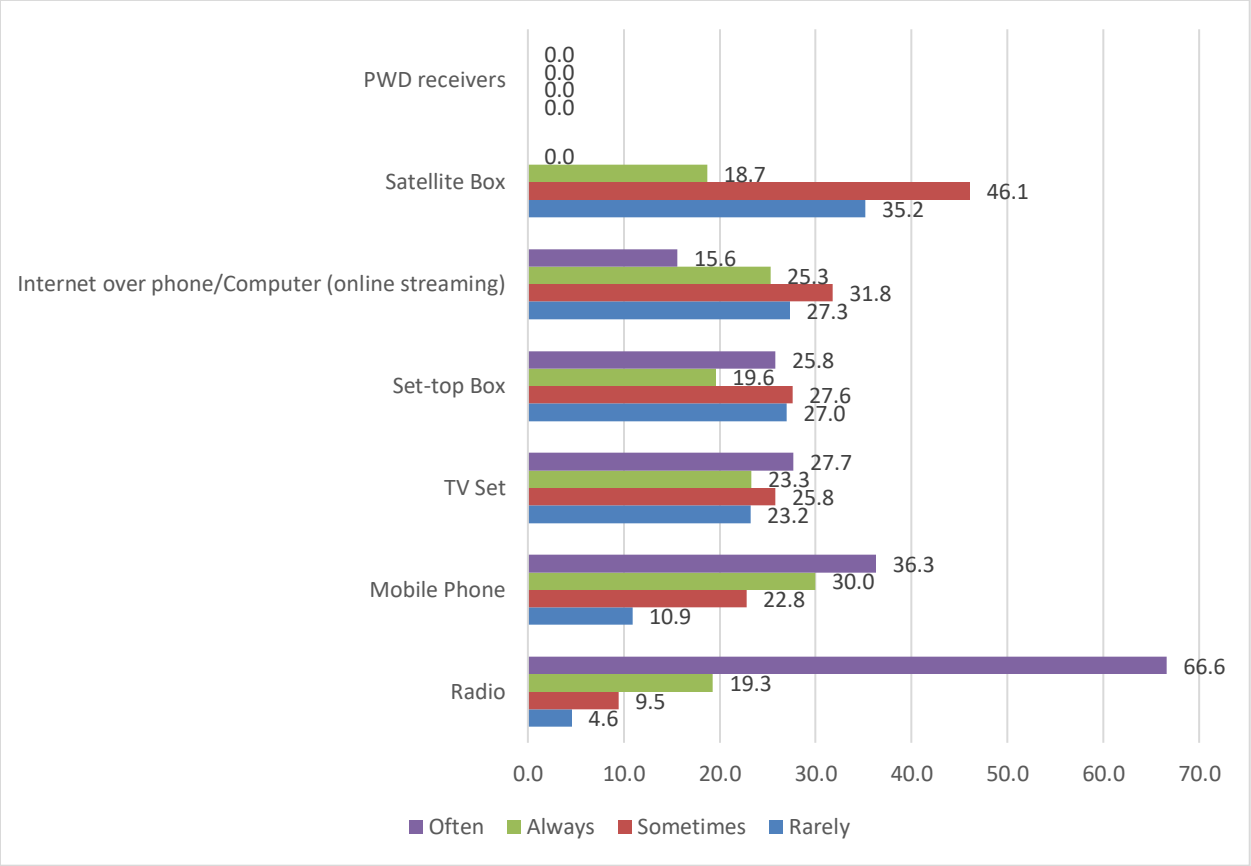
Radio broadcast is predominantly access by radio set. However, the ownership of the radios and other access modes varies depending on where the consumer is located.

3.3.1 Access devices, by location, and by gender

Over 78% of the surveyed respondents reported that they owned a radio while 20.3% did not own it because "it is expensive". Further, 68.8% of those who did not own a radio stated that it was not necessary to them. This result indicated that there are alternative ways of accessing radio broadcasts including through mobile phones (66.3%) and online streaming (40.9%). The implication on the finding is that broadcast has been adopted calling for regulation intervention that come with online (OTT), broadcast service offering.

Devices used to access Radio. Radio broadcast services are accessed by various devices including radio, satellite box, mobile phones, and internet among others as presented in Figure 29.

Figure 29: The frequency of use of devices to access Radio



As seen in Figure 29, radio set is the most widely used device to access radio broadcast services (85.9%) for respondents who use it "always" and "often" followed by mobile phones at 66.3% and TV sets at 51%; these are the smart/ digital TV sets (Digital and smart devices) which have the capability to support both radio and TV FTA broadcast access/reception). Similar result were observed by GeoPoll survey [17] where radio listenership was done at home via radio (57%) and mobile phone (49%). It is further noted that respondents have multiple access devices to access radio service. Further, online streaming, set-top boxes and satellite boxes were less used to access radio broadcast as reported by 40.9%, 45.4% and 18.7% respectively. The low level of satellite is partly explained by the fact ray services which are expensive to most consumers.

The use of PWD receivers was not reported by any of the surveyed respondents. This finding indicates inaccessibility to radio access devices by PWDs and corroborates findings in this survey on TV PWD access devices/ receiver where no respondent reported to own/use a PWD device. In this regard, smart TVs with close captioning are need to enable hearing impaired persons to access radio broadcast. Specifically, radio to sign language translation devices for "radio listening" by persons with hearing impairment should be required and provide to ensure that radio is accessible to people

[17] https://www.geopoll.com/blog/q1-2021-media-stats-kenya/

with hearing impairment. Further, there is need to introduce services to enable audio to text conversion to avail audio broadcast to text receivers.

Radio access by sub-location category. The use of radio by sub-location category was assessed and the result is in Table 13.

Table 13: Use of radio by sub-location category

		Radio				Total
		Rarely	Sometimes	Often	Always	
Sub-location category	Rural	3.1%	8.7%	68.7%	19.4%	100.0%
	Urban	6.9%	10.6%	63.3%	19.2%	100.0%
Total		4.6%	9.4%	66.6%	19.4%	100.0%

(x2 =14.287, p = 0.003, Cramer's V = 0.097)

According to the result (Table 13) radio service is often accessed in both rural and urban areas though it is more used in rural areas. Few people rarely use radio (rural: 3.1%; urban: 6.9%). Further, there was a strong association between the frequency of use of radio by households and the category of sub-location - rural versus urban (x^2 =14.287, p = 0.003 < 0.05; Cramer's V= 0.097). in this regard, more people used radio in rural areas than in urban areas.

Use radio across gender. Table 14 presents the use of radio across gender.

Table 14: Use of Radio by gender

		Radio				Total
		Rarely	Sometimes	Often	Always	
Gender of the respondent	Female	6.1%	10.8%	63.6%	19.5%	100.0%
	Male	3.4%	8.4%	69.1%	19.2%	100.0%
Total		4.6%	9.5%	66.6%	19.3%	100.0%

(x2 =9.928, p = 0.019, Cramer's V = 0.081)

The findings in Table 14 shows that greater proportion of male than female used radio "more often" with frequency scores of 69.1% and 63.6% respectively. In view of the need for gender mainstreaming in all aspects of socio-economic development, the use of radio broadcast service across gender was assessed. It was found that more men than women accessed radio.

Similarly, 6.1% of female compared to 3.4% of male stated that they rarely used radio. The results indicated existence of a statistically significant difference in the frequency of use of radio across gender with the use of radio being higher among men than women. The association between gender and frequency of radio use was strong and significant (x^2 =9.928, p < 0.05, Cramer's V = 0.081).

Use of mobiles to access radio broadcast.

An understanding of the modes of access to radio broadcast has important implication for interventions to enable availability of access devices.

The comparison of rural and urban population access to radio by mobile phones is presented in Table 15.

Table 15: Use of Mobile phone to access radio by sub-location category

		Mobile phone				Total
		Rarely	**Sometimes**	**Often**	**Always**	
Sub-location category	Rural	10.3%	23.6%	36.3%	29.8%	100.0%
	Urban	11.9%	21.7%	36.4%	30.0%	100.0%
Total		11.0%	22.8%	36.3%	29.9%	100.0%

(x2 =1.201, p = 0.753, Cramer's V = 0.031)

The result on Table 15 indicates that the use of mobile phones to access the radio broadcast service was homogeneous. across sub location category - rural and urban areas in almost equal proportions. As seen in the table, the respondents who "always" and "often" used mobile phones were 66.1% and 66.4% in rural and urban areas respectively. There was no significant difference in consumer preference between the rural and urban sub-locations in the use of mobile phones to access radio. Thus, there was weak insignificant ($p > 0.05$) association between frequency of mobile phone use to access radio and the sub-location category ($x^2 = 1.201$, $p = 0.753$, Cramer's V = 0.031). This finding is supported by the fact that mobile services can be accessed both in urban areas and rural areas, and that that the radio access applications are available in most phones; whether smart or basic.

Use of TV to access Radio across gender.

Advances in technology has made reception of both TV and radio signals possible on the same device - smart TV an even the smart phone for streaming. Gender dimension to access of devices is also important for necessary interventions.

The study also assessed the difference in use of TV sets to access radio by gender. The result is presented in Table 16.

Table 16: Use of TV set (digital/smart) to access radio by gender

		Mobile phone				Total
		Rarely	**Sometimes**	**Often**	**Always**	
Sub-location category	Rural	10.3%	23.6%	36.3%	29.8%	100.0%
	Urban	11.9%	21.7%	36.4%	30.0%	100.0%
Total		11.0%	22.8%	36.3%	29.9%	100.0%

(x2 =5.207, p = 0.1577, Cramer's V = 0.087)

According to the results on Table 16 there was little difference in preference across gender for those who said they use TV to access radio "always" with scores of 24.2% and 22.7% for female and male respectively. There exists no statistically significant

difference between frequency of use of TV to access radio and gender. This is also supported by a weak association between the frequency of TV use and gender (x2 =5.207, p = 0.1577; Cramer's V = 0.087). Thus, the use of TV to access radio broadcast is independent of gender of the consumer. This suggests that there is parity in access to smart/ digital TV to access radio by both women and men.

3.3.2 Radio Programming

Radio programming is designed to convey information, underlying principles and to assist the programmer in accomplishing specific objectives, without mandating exact implementation methods. Further, according to Norberg (1996), proper radio programme design and management empowers radio station management to implement strategies that will work for the particular format and market niche[18]. This study assessed various aspects of programming by radio stations in Kenya and results are presented in the subsequent sections that follow.

Language used in Radio Broadcasting. Radio services are broadcast in various languages including Kiswahili, English and local languages across sub-locations in all counties in Kenya. the currently used and the preferred languages.

Figure 30: Languages used by Radio stations

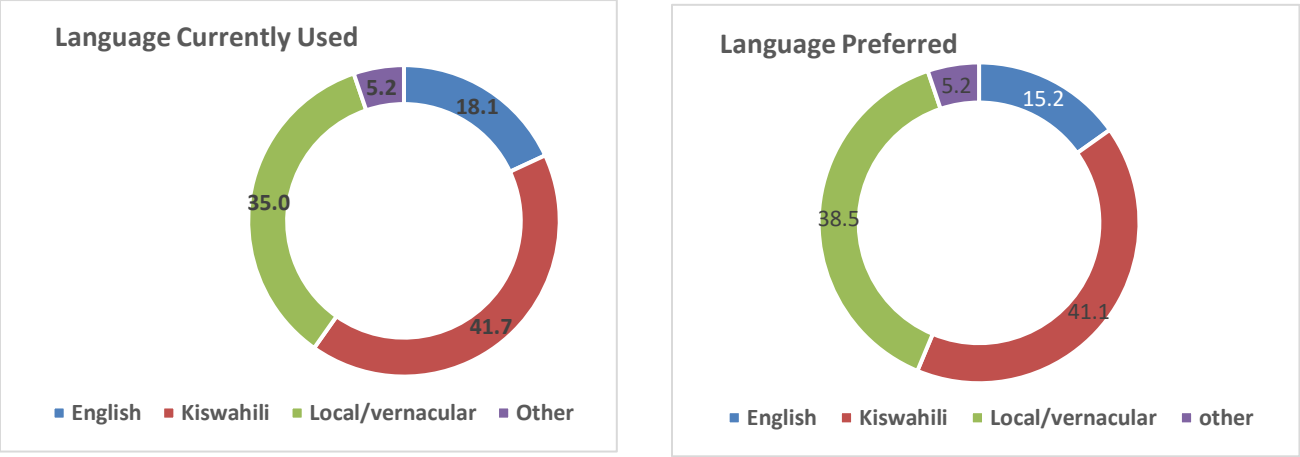


Figure 30 shows that Kiswahili is the most commonly used language by radio broadcast stations in Kenya followed by Local/vernacular languages and English respectively. Similarly, Kiswahili is the most preferred radio broadcast language followed by Vernacular. This finding could be attributed to Kiswahili being the National language in Kenya. It is also noted that there is need for less English and more vernacular language broadcasts which may indicate that the population is embracing vernacular languages.

3.3.3 Quality of Radio broadcast Signal

An assessment of the quality of radio broadcast service was done across urban and rural areas. According to this survey results 78.4% in urban areas compared to 68.1% in rural areas reported the quality of radio broadcast service to be good. The result of

[18] Norberg, E. (1996). *Radio programming: Tactics and strategy*. Routledge.

perception of the quality of the radio broadcast signal by consumers is presented in table 17.

Table 17: Quality of radio broadcasting signal by sub-location category

		Provide your assessment of the quality of Radio broadcast signal			
		Good	**Fair**	**Poor**	**Total**
Sub-location category	Rural	68.1%	27.1%	4.7%	100.0%
	Urban	78.4%	20.5%	1.1%	100.0%
Total		72.3%	24.5%	3.3%	100.0%

(x2 =28.992, p = 0.000, Cramer's V = 0.134)

Table 17 indicates a better radio signal quality in urban areas (78.4%) than in rural areas (68.1%). This difference in score can be attributed the quality of broadcast signals which are of acceptable strength leading to clear radio broadcasts in urban areas compared to the converse in the rural areas. The quality of FM from radio signal was 10.3 percent points better in urban areas than in rural areas.

3.3.4 Quality of Radio Broadcasting Service

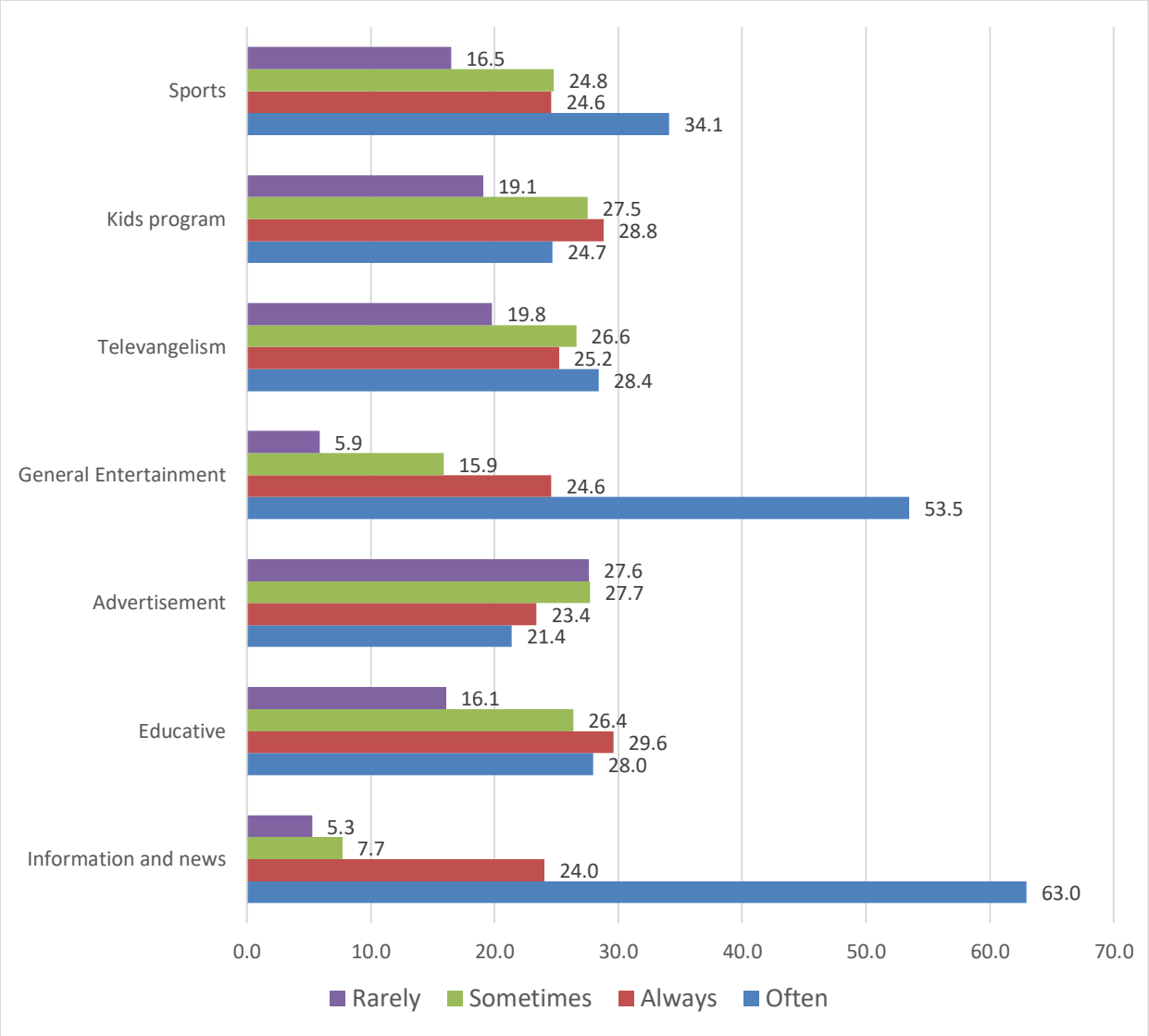
Quality is a multifaceted phenomenon which crucial to the assessment of appropriateness and "fit for purpose" of a service. Similarly, the fact that the listeners in urban areas can access a greater number of their favorite channels compared to those in rural areas where access to some of the radio stations and quality signal is limited can partly explain the variation in the perception of quality of service. Quality was assessed in terms of content type, and its programming in both urban and rural areas. There was a statistically significant difference in the assessment of quality of radio broadcast across sub-location category (urban/rural) (x2 =28.992, p > 0.05, Cramer's V = 0.134). In this regard, there was an association between quality of service and sub-location category. Hence quality was not independent of whether a sub-location was rural or urban.

Content accessed by the audiences.

The radio content that is accessed is indicative of whether the radio station is used for socio economic development or otherwise.

According to this survey, the radio content accessed by consumers is shown in Figure 31.

Figure 31: Content accessed through radio broadcasting



Similar to access TV content, majority (87%) of radio viewers used their radios to access information and news broadcast. (always; 24%; often: 63%) This was followed by 78.1% who used their radios for general entertainment (always; 24.6%; often: 53.5%) 44.8% of listeners used their radio to access advertisement broadcast while 53.6% accessed televangelism and 57.6% used for educative broadcasts (Figure 31).

3.3.5 Gender and socio-cultural conditions/factors affecting access, needs and preference broadcasting services

According to the current survey, men were more frequent radio listeners and TV viewers compared to women in both rural and urban areas. However, in terms of quality of broadcast services however, there was no statistically significant difference on the perceived satisfaction by men and women. Further, inappropriate content during the watershed period was equally mentioned by both men and women surveyed. In

particular, some of the content broadcast especially for radio was inappropriate since the topical issues that were being discussed were explicit hence inappropriate.

3.3.6 Content and Programming

It is desirable that appropriate content be created, programmed and broadcast to the target audiences. Content is appropriate when it addresses socio-economic issues that are important to the society. According to the survey data, various concerns were raised regarding broadcast content and its programming. The concerns that were raised fell into three categories, namely content, programming and language (See Box 3).

Box 3. Misgivings about broadcast content and programming

1. Content

- Advertising about witches in radio and what they do
- Burial advertisement
- Domestic violence
- Gambling
- Hooking up couples
- Vulgar language
- Programs advocating pre-marital sexual behavior and divorce
- Too much political talks
- Inappropriate music

2. Programming

- Adult and kids content mix-up
- Adult content during the day
- Advertising when the music is still playing
- Morning shows with adult content
- Adult programs between 9-11 am
- Patanisho placed at the wrong time
- "At night, adult talks are vulgar especially on sexual issues that you cannot listen to with kids" (respondent)

3. Broadcast in Vernacular

Inadequate broadcasts in vernacular/ local languages

Source: Baseline survey data, July 2021

The issues shown in Box 3 imply the need for more sensitivity to societal needs on the part of the broadcasters and vigilance of the regulators to ensure that the rights of the viewers are protected. The viewers should also remain vigilant to point out violations to their rights by the media houses and raise them with relevant regulators.

In summary, affordability, awareness, needs of PWDs, consumer protection, and quality of service are crucial demand side factors for the broadcasting services on which gaps were identified.

3.4 Characteristics of existing Broadcasting services

In this survey, a number of barriers to access and use of broadcast services by the general public and PWDs were identified These include content, programming, local languages, affordability, consumer protection, quality of service and access devices.

3.4.1 Programming

There is insufficient adherence to programming code hence the need to implement watershed specifications, package audience-sensitive programs, adopt alternative broadcasting language for adult content, and impose sanctions for breach of programming code.

3.4.2 Local languages

The current mode of vernacular radio broadcast service is to broadcast in both urban and rural areas e.g., for Kisii language broadcast is in both Nairobi and in Kisii and Nyamira counties.

There 19 local languages radio broadcasts (Kikuyu, Luo, Luhya, Kamba, Kisii, somali, Kalenjin, Meru, Maasai, Embu, Turkana, Rendile, Borana, Burji, Pokot, Suba, Kuria, Pinot, and Teso). However, some minority communities do not have broadcasts in their local languages and cannot access the services.

3.4.3 Expensive access devices for people with disabilities

User devices are expensive for example, in 2017 a hearing aid from Incusear Kenya was KES 350,000 with a life expectancy of 5 years which translated to KES 70,000 per year or KES 6,000 per month. According to American Foundation for the Blind prices for screen readers cost ranges from free to USD 1200 (https://www.afb.org/), Further, PWDs software cost is high. Specifically, annual license for job access with speech (JAWS) is USD 90 in the US while in the UK, JAWS costs 200 pound for a 90-day trial, 699 pounds for JAWS home, and 945 pounds for JAWS professional exclusive of VAT (https://www.abilitynet.org.uk/). Other software are non-visual desktop access (NVDA) for access to TV and radio through online streaming; and Voiceover, and Talkback which are free. There is also noncompliance with the requirement to provide alternative access formats for PWDs by service providers; this is a barrier to access to these services by PWDs.

Through a key informant interview with the National Council for Persons with Disability, there is need to address the needs of PWDs consistent with the Constitution of Kenya 2010 by designing and providing services that meet their needs (see also Box 4).

Box 4: Broadcasting Needs for Persons with Disabilities

PWDs are not able to access radio (hearing impairment) and TV (visual impairment) broadcast having a barrier The following is a summary of the findings of the interview with the National Council for People with Disability regarding access to broadcasting services for PWDs.

1. *Engagements with CA on ensuring PWDs access broadcasting services*
   - There are engagements on access to broadcasting except waivers for messages to public and for materials
   - There is MoU an effective working formula on how enforcement of laws for PWD to access services can be achieved
   - There is continued collaborations between PWD and CA
2. *Challenges/gaps faced by PWDs in accessing broadcasting*
   - Limited access to ICT and assistive technologies to enable engagement of PWD
   - TV, mobiles, and computers are limited; there is no program that facilitates this at affordable price

- Lack of awareness by the PWDs on the software that can be installed e.g., in computers or mobile phones
- Limited ICT knowledge and skills on how to use ICT applications that are available; minimal or no training of PWD on how to access this information
- Minimal funding from government on ICT and assistive technologies and software e.g., JAWS (https://www.freedomscientific.com/products/software/jaws/) for PWDs

3. *Affordability and availability of special devices for PWDs to access Broadcasting*

There is shortage of devices and those that exist are expensive; the available ones are not accessible and their quality is poor. Hence the universality of the products for PWD: available, quality, affordable is not realised; the devices are largely unavailable and unaffordable for PWDs.

4. *NCPWD strategies for the next 5 years to ensure universal access to Broadcasting by PWDs?*

- To collaborate with CA to enforce existing laws regarding the needs by PWDs
- To engage public and private entities to ensure that the service is accessible and in usable format/s; e.g., important government documents should have been written in Braille; or a TV program with proper interpretation. For example, the policy documents should be PWD friendly in an inclusive manner
- To provide relevant ICT skills for PWDs to use the innovations to access broadcasting services
- To work with commission for administrative justice to ensure enforcement implementation of policies and laws that address PWD concerns; there are so many policies and laws that are not enforced
- To create awareness on accessibility and inclusion of people with disabilities

5. *Recommendations to enhance access to Broadcasting services to PWDs*

- To promote design and distribution of devices for the PWDs
- Promote access to affordable assistive technologies for PWDs
- To promote affordability of broadcast services
- Promote access to infrastructure for use by PWDs: computers, mobile phones and waive duty
- To promote stakeholder collaboration such as with Huduma centres to help PWD to access e-government services so that they get service without difficulty
- To promote online access to services by PWDs
- Enforcement of requirements for discounted services for PWDs from service providers

3.4.4 Affordability of broadcasting services

Devices necessary to access both radio and TV broadcasting services for PWDs are scarce and expensive. In particular, available credits and subsidies to purchase user devices (such as for PWDs), cost of radios, television sets, set top boxes, broadcasting services subscriptions, and repair and maintenance contribute to low access to broadcasting services.

For example, subscription TV services are expensive costing KES 7,400 in Kenya (see Table 18) for premium subscriptions per month for pay TV. South Africa charges are less by about 14% while Nigeria charges 67% (N4900) of the price in Kenya. The cost comparisons are presented in Table 18.

Table 18: Comparison of pay TV monthly subscriptions

Country	Kenya (MultiChoice)	Nigeria (Sep 2021) 1N = KES 0.27	South Africa (May 2021) R1 = KES 7.34

FTA+		1600	
ACCESS		2565	
Family	1180	4615	
Compact	2455	7900	399
Compact+	4420	12400	529
Premium	7400	18400	819

Source: https://creebhills.com/2020/09/dstv-subscription-packages-nigeria
https://www.google.com/search?q=dstv+package+prices+in+south+africa&client=safari&source

It is noted from Table 18 that TV subscription services are comparatively more expensive in Kenya compared to Nigeria and South Africa; hence the need for reduction of these charges.

3.4.5 Consumer protection

Adequate consumer protection enables consumers to effectively use broadcast services. Notwithstanding the fact that there exist elaborate consumer redress mechanisms by the regulator, several gaps in consumer protection have been identified. Some broadcasters including community broadcasters do not have sufficient financial capacity to comply with regulatory requirements such as broadcast station logging equipment (KES 150,000) and profanity delay (KES 200,000) for radio. The cost for TV station profanity delay equipment is KES 800,000 while that for station logging equipment is KES 200,000. Both the logging and profanity delay equipment have the same lifespan as computers and need to replaced regularly.

Specifically, community broadcasters point out the of high cost of profanity delay equipment (to permit censorship in line with programming code), logging (recording of broadcast output and storage thereof for a minimum of three months) and band pass equipment (to delimit the signal within the frequency allocated to prevent interference), which are a compulsory requirement by the regulator as major challenges.

Internal dispute resolution mechanisms by broadcasters are also not fully utilized or are not fully operationalized as some media houses do not have policies in place to realise or employ internal resolution mechanisms while some lack the budget or goodwill to operationalize these.

Consumer awareness is also low on the attendant rights attaching to broadcasting. In as much as there are efforts towards onboarding PWDs in broadcasting services, the same is not universal as most stakeholders lack the additional incentive to convert their services to languages understandable to PWDs. (CA has laws in place for consumer protection. There are laws on which type of programming to broadcast and at what time slot. The Broadcasting providers have complaint mechanisms in place for the consumers to comment on the content. Television sign language is a mandatory requirement for all TV broadcasters).

3.4.6 Quality of broadcasts signal

The quality of broadcast signal received by consumers is part of the overall assessment of the quality of service by the consumers. Whereas there is progressive effort to improve quality of service offerings to consumers, instances of low transmitter powers, signal

interference, service downtime and ancillary outages such as electricity outage and communication duct cuts during construction of roads affect quality of service. These have adverse effects on the overall consumer experience.

According to this survey, 71.2% of TV viewers urban areas and 61.3% in rural areas had a good reception of broadcast signal (Table 5). There is a 9.9% quality gap between rural and urban areas and an overall countrywide quality gap of 34.6% since the national indication of "good" broadcast reception was 65.4%.

3.4.7 Broadcasting services for people with disabilities

Universal access to services implies that everybody irrespective of their condition is able to access the services. This is in line with the Constitution of Kenya 2010 and other international conventions. The 2019 census [19] reported 2.2% (918,270 people) of Kenyans live with some form of disability. Analysis of prevalence rates by residence shows 2.6% (0.7 million) of people in rural areas and 1.4% (0.2 million) of people in urban areas have a disability. The proportion of persons living with disability by gender type is presented. More females (523,883) than males (394,330) had disabilities. The common types of disability were mobility (385,417) followed by visual (333,520) (see Box 5).

Box 5. Prevalence of Disability in Kenya

The Kenya 2019 census used the UN-recommended standards to guide the collection of data on disability. These standards – the Washington Group Questions – were used in the 2019 census to identify people with disabilities[20]. The Washington Group Short Set of Questions are designed to identify people who experience difficulties in doing six universal, basic actions – seeing, hearing, mobility, cognition, self-care and communication [21] . Based on these difficulties, the census classified PWDs into six domains;

i. **Seeing difficulties:** Vision impairment refers to people who are blind or who have partial vision.
ii. **Hearing difficulties:** Refers to deafness, hearing loss or difficulty in hearing, including the inability to hear what is said in a conversation even with hearing aids.
iii. Physical difficulties: Refers to any difficulty in moving one or more parts of the body.
iv. **Cognition difficulties:** Cognitive Disabilities are kind of impairment present in people who are suffering from dyslexia and various other learning difficulties and includes speech disorders.
v. Self-care difficulties: Problems in carrying out activities of daily living without support from a relative, personal assistant or caregiver. Self-care activities include personal hygiene (washing/bathing, toileting, care of teeth, hair and nails, etc.), dressing and undressing, and eating and drinking.
vi. **Communication difficulties (speech impairment):** – Refers to any difficulty in communicating through oral speech or being understood by others.

Based on the survey data and interviews conducted with stakeholders (consumers and service providers), the following proposals are made to improve access to broadcasting services by PWDs:

[19] https://devinit.org/resources/status-disability-kenya-statistics-2019-census/
[20] https://devinit.org/resources/status-disability-kenya-statistics-2019-census/
[21] e https://www.who.int/news-room/factsheets/detail/disability-and-health

- Media houses should install access infrastructure for PWDs to access studios and receive radio and TV broadcasts
- Continue and expand the use of sign language and enforce the requirement for service providers to broadcast in formats accessible to PWDs.
- Design broadcast programs that are inclusive of PWDs for them to articulate and address their issues on a well-coordinated platform
- Promote creation of content that fit the needs of PWDs
- Support acquisition of equipment that can assist broadcasters to implement closed captioning on flagship shows or pay for the sign language interpreters for the flagship shows.
- Support the roll out of the quality standards for Assistive Products for Persons with Disabilities developed by the Kenya bureau of Standards[22].

3.5 Policy, Legal and Regulatory Framework

There are opportunities for policy, legal and regulatory intervention that may spur the availability and universal coverage of broadcasting services One action area is the need to harness a legal and regulatory enablement for emerging technologies that can be utilized to provide broadcasting services including OTTs, among others. There is thus need for strengthening of regulatory enablement to ensure market efficiency including addressing compliance enforcements as necessary. Furthermore, legislation and regulation with regard to content intellectual property and royalties need examination and formulation of strategies to guide development of broadcasting services.

Consequently, development of public interest digital services, knowledge gaps and spectrum availability are imperative.

Indeed, studies have found that countries with strong public broadcasters have smaller knowledge gaps between social groups and that public broadcasting tends to minimize the knowledge gap between the advantaged and disadvantaged, and therefore contributes to a more egalitarian pattern of citizenship. [23] This calls for the strengthening of the broadcasting sector by aligning the Act with the demands of the day, there is need for legislative amendments to among others, harmonize definitions across the broadcasting sector, onboard new technologies and media offerings in the definition of services, delineate the governance functions to include modern day public broadcasting that fulfils the core objective of *an impartial entity, independent of commercial and political influence, that would provide public interest information and entertainment programming[24] on a universal service basis.* The following are the findings on the policy, legal and regulatory review.

[22] https://www.kebs.org/index.php?option=com_phocadownload&view=category&download=97:approved-list-of-standards-sac-april-2018&id=45:year-2018&Itemid=253
[23] https://pcl.stanford.edu/research/2008/curran-mediasystems.pdf
[24] https://knightfoundation.org/public-media-white-paper-2017-gardner/

3.5.1 Enactment of New Regulations

By dint of Section 21 of the Statutory Instruments Act, 2013, section (3), and based on the technological disruption of existing markets, it is proposed that the regulations under Sections 46K and 84P of the KICA,1998 be reviewed regularly to cover the changing demands of the market. In particular aspects such as definition of broadcasting services (Kenya Information and Communications (Broadcasting) Regulations, 2009), tariffs (Kenya Information and Communications (Tariff) Regulations, 2010) and universal services Kenya Information and Communications (Universal Access and Service) Regulations, 2010 should continually be reviewed to accommodate the changes in the broadcasting sector.

3.5.2 Media Sector Legislative Review 2021 proposals

In the Media Sector Legislative Review 2021, the Media Council of Kenya observes that the country requires policy and legal regimes that strengthen the protection and promotion of media freedom and watchdog role, enhance independence, build the capacity of the media to speak and represent public interest agenda and a framework that cultivates professionalism accountability.[25] The Council proposes amendment of various legislation as follows (Table 19):

Table 19: Proposed legislative amendments

SN	Act	Proposed amendment
1	Media Council Act, 2013	(i) define media practitioners and media consumers (ii) expand definition of journalist to include online content creators and bloggers (iii) obligate that overall heads of media houses be professionals with background in journalism (iv) enhance the independence of the Council
2	Kenya Broadcasting Corporation Act, Cap 221	Transform KBC from a state broadcaster to a public broadcaster
3	Kenya Information and Communications Act, No. 2 Of 1998	(i) Remove overlaps in the functions of the Media Complaints Commission

This regulatory review further proposes the following definitions:

"**Media Practitioner**" to mean any person who practices their trade in media and includes, talk show hosts, continuity announcers, anchors, presenters, photojournalists, camera persons, graphic designers, content producers, broadcasters under the Kenya Information and Communications Act, a publisher engaged in the publication and the manager or proprietor of a publication or broadcasting station.

"**Consumers of media services**" as including viewers, listeners, advertisers and any other person who uses media services.

[25] https://www.mediacouncil.or.ke/sites/default/files/downloads/MEDIA%20SECTOR%20LEGISLATIVE%20REVIEW%202021.pdf

3.5.3 Copyrights

Section 26C of the Copyright Act 2001provides that it shall not be an infringement of copyright for an authorized entity to reproduce or to distribute copies or sound recordings of a previously published literary work if such copies or sound recordings are reproduced or distributed in specialized formats exclusively for use by visually impaired or other persons with disabilities.

Signal piracy. This is part of violations in the framework of copyright. It can take many forms including:

- Unauthorised simultaneous or deferred re-transmission of the encrypted or unencrypted signal on other platforms on a commercial basis;
- Selling, advertising, possessing or using illicit devices to circumvent encryption measures to access TV services without permission or payment;
- Use of TV services without being a subscriber of the service provider (unauthorised connection to the network) or viewing free-to-view TV services that should not be available for your geographic area.

Pirating of broadcasting signals results in revenue losses across the TV content distribution chain from the content producers to the TV platform companies. As broadband capacities increase, signal theft and retransmission over the internet pose further threat to broadcasters and independent producers including their revenue.[26] Signal piracy makes it significantly difficult for public service broadcasters to sell their local content in foreign markets, especially when viewers in those markets already have access to the content illegally.[27]

Section 29 of the Copyright Act defines copyright in broadcast to include the exclusive right to control *any unauthorised expropriation of the broadcast or pre-broadcast signal meant for reception by another broadcaster***.** There is no express provision in the Act directly addressing unauthorized reception of encrypted transmissions.

In the international sphere, the insufficiency of laws in the broadcasting realm has been highlighted. The Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations which has restricted international appeal (95 signatories[28]) was formulated in an epoch where cable network was at its inception, the use of satellites for broadcast transmission was novel and the Internet was not even conceived.[29] The dynamic evolution of broadcast technology means the industry is often left exposed and absent effective legal remedies broadcasters may be able to sustain their existence.

Internet streaming and access. The exponential increase in internet streaming and access in Africa has also made the cross-border nature of signal piracy a significant focus area necessitating international cooperation. It is therefore further proposed that

[26] https://www.wipo.int/edocs/mdocs/africa/en/ompi_pi_dak_15/ompi_pi_dak_15_cluster_ii_9.pdf
[27] https://www.wipo.int/wipo_magazine/en/2018/01/article_0002.html
[28] https://wipolex.wipo.int/en/treaties/ShowResults?search_what=C&treaty_id=17
[29] https://www.wipo.int/wipo_magazine/en/2018/01/article_0002.html

international agreements be concluded to support local efforts in protecting broadcasters.

As observed in the joint declaration on signal piracy by the World's Broadcasting Unions, public interest is served by convenient access to broadcast signals, legitimately offered and fairly rewarded but not by their unauthorised use.30

Consequently, it is proposed that an assessment of the financial implications of signal piracy on the public broadcaster be conducted. This study can be ancillary to an assessment of signal piracy in Kenya and the associated financial losses in the broadcasting industry.

(1) Globalisation

(i) The rapid blurring of territorial boundaries through the internet has made regional and international cooperation in ICT an urgent necessity. The existing policy, legal and regulatory frameworks should be integrated and harmonized to create overarching principles that would govern the regulation of a sector of increasing ubiquitous nature.

(ii) There is need to strengthen the coordination enforcement efforts in addressing extra-territorial crimes including those related to critical infrastructure

30 https://www.ebu.ch/files/live/sites/ebu/files/News/Position_Papers/open/EBU-joint%20position-EN%20Piracy-V5.pdf

4. SUPPLY AND DEMAND GAPS

4.1 Supply Side gaps

The identified supply side gaps include signal coverage, quality and content gaps:

4.1.1 Coverage gaps

Coverage gaps comprise situations where the consumers are notable to receive a broadcast signal or when the reception is poor implying a poor broadcast signal. In this survey, the identified coverage gaps are as follows:

(i) No broadcast signal coverage
(ii) Poor signal in covered areas leading to "black spots"/ signal gaps
(iii) Low power transmitter stations with limited coverage area
(iv) Limited coverage area due to low transmitter power
(v) Full spectrum allocation in urban areas, particularly in Nairobi and Mombasa

The other aspects that constitute coverage and access gaps include:

(i) Inadequate or no support infrastructure which includes lack/shortage of power supply, poor road network in remote rural areas, insecurity in the northern and eastern part of Kenya which have no signal or limited coverage and commercial factors of lack financial resources to roll out service to remote unserved areas and high establishment and operation costs in rural/ remote areas.
(ii) Economically unviable areas which are unattractive for commercial considerations.

4.1.2 Content and programming gaps

Though there is need for relevant content and programming which is appropriate for the audience, gaps have been identified, these include:

- Inadequate relevant local content
- High cost of production of local content
- Scarce content for PWDs. A key informant observed that "radio is about sound and voice and therefore those who are deaf would have access challenges. A lot of focus has been on gender especially women…but not on PWDs. While some broadcasters have programs for PWDs, but this is still an area of special interest since the content is still unavailable or scarce despite the fact that community broadcasters are trained and encouraged to have content creation policy guidelines to include PWDs within their areas of broadcasting reach.

4.1.3 Policy, Legal and Regulatory Review Gaps

The technological revolution has consistently challenged exiting policy, legal and regulatory frameworks such that necessary interventions must be imputed and implemented to create an enabling environment that spurs further innovation. An analysis of the existing policy, legal and regulatory framework reveals the following:

(i) Enactment of regulations. By dint of Section 21 of the Statutory Instruments Act, 2013, Section (3), the regulations under Sections 46K and 84P of the KICA,1998 be reviewed to cover the changing demands in the market.

(ii) Evolution and new services: Online Content

a) Advancement in technology has created a need to expand the scope of applicability of existing legislation. Under the KICA, 1998 for example, broadcasting is defined in terms of television and radio programmes. The definition does not include online content that has in recent times become exponential.

a) Section 2 of KICA 1998 defines a "Private Broadcaster" as a person licensed by the Authority to provide commercial broadcast services. This definition attunes to that of broadcasting as delimited to television and radio services. It does not onboard other services that may be transmitted including through other media for commercial purposes. During the KIIs, it was noted that in the context of universal broadcasting, the definition of broadcasting should be expanded because basics change.

b) There is an increase in utility of online content creators for commercial advertising especially through social media. One attempt at regulating such content could be through Section 4 of the Media Council Act 2013 that delineates the applicability of the Act to include media practitioners who are not defined under this Act. This may thus require judicial interpretation to domicile online content creators under the Act (Media Council Act 2012). Nevertheless, the Act gives effect to Article 34(5)(c) of the Constitution and only the issue of scope in terms of online content requires clarity.

c) The requirement for licensing under the Act may further be exploited through innovation and utility of loopholes in the existing legislation to avoid liability under this Act.

(iii) Implementation of existing frameworks: A call for enforcement

a) Where the law is available, gaps in implementation still arise. One example is the requirement for certification under Section 12 of Films and Stage Plays Act. In recent times, there have been spirited affronts against the efforts of the Kenya Films Classification Board in respect of/to online content highlighting the need to clearly define a code for online content. This is currently under attention through the Kenya Information and Communications (Amendment) Bill, 2019 that inter alia purposes to regulate the use of social media by introducing new sections to the Act on licensing of social media platforms, sharing of information by a licensed person, creates obligations to social media users, registration of bloggers and give responsibility to the Authority to develop a bloggers code of conduct in consultation with bloggers.

b) Child online protection is also a continuous concern. How effective compliance and the attendant monitoring mechanisms are remains the subject of increasing significance especially in emerging technologies and service offerings like IPTV that are domiciled extraterritorially.

c) Instances of unabated unsolicited communications still dominate social debate highlighting the need to reinforce consumer protection.

d) There is low compliance with security standards and instances of breach predominantly go unreported.

e) There is need to reinforce efforts for alternative access service formats for persons living with disabilities.

(2) *Prevention of unauthorised reception of transmissions.* An amendment to Copyright law 2001 for the specific purpose of preventing the unauthorised reception of transmissions either encrypted, unencrypted or both to include:

- criminal sanctions against the unauthorised reception of transmissions;
- criminal sanctions against the commercial dealing in equipment purposed to enable unauthorised reception of an encrypted transmission;
- civil remedies in relation to the unauthorised reception of transmissions;
- civil remedies in relation to commercial dealing in equipment which has the purpose of enabling unauthorised reception of transmission.

(3) Access by People with Disabilities

a) The Persons with Disabilities (Access to Employment, Services and Facilities) Regulations, 2009 do not expressly provide for incorporation of sign language in television programmes aired by community broadcasters.

The suggestions for best practice on inclusion of PWDs in all aspects of development is presented in Box 6.

Box 6. Best Practice for including PWDs in Development

The following are the United Nations Best Practices for including persons with disabilities in all aspects of development efforts are as follows:

(i) Adopt a rights-based approach promoting barrier removal and inclusion in all sectors
(ii) Ensure that disability-sensitive indicators or markers are provided for and applied in development strategies and road maps.
(iii) Promote, enable and facilitate the meaningful participation of persons with disabilities, including children with disabilities.
(iv) Ensure disability-inclusive responses in situations of risk and humanitarian emergencies.
(v) Invest in capacity development of staff involved in matters related to the rights of persons living with disabilities.
(vi) Strengthen statistical capacity to produce reliable disaggregated data on persons with disabilities. Resources should be allocated to the collection and analysis of reliable and disaggregated data by sex and disability in national statistical systems in order to support the design and the monitoring of better programmes, policies and emergency responses and to promote the awareness of persons with disabilities as a heterogeneous and internally differentiated group.

Source: https://www.un.org/disabilities/documents/best_practices_publication_2011.pdf

Recommend changes in market structure for FM radio to have signal distributor and broadcaster

4.2 Demand side gaps

The demand side factors that have implications for access and use of broadcasting services include affordability, awareness, needs alternatively-abled persons, consumer protection and quality of service. The following are the gaps that were identified:

Quality of service

Quality of service is unsatisfactory in the under-served areas in both urban and rural areas Quality of service[31] comprising speed, flexibility and convenience define quality from the perspective of the consumer. Quality of service concerns, namely poor signal, signal interference, unsuitable programming and content call for action to ensure acceptable levels of broadcast service.

Content and Programming

(i) Some content is inappropriate such as vulgar language. Therefore "producers ensure that content is of good quality and appropriate so that media houses can take them up with the confidence that such content will be appealing to consumers" (*KII, June 2021*).

(ii) Content is not available in format that can be used such as by the general public and PWDs (KII June 10, 2021). This should be addressed according to the Constitution of Kenya 2010 through enforcement of commensurate enforcement laws and regulations on provision broadcast content in formats that meet the needs of the population.

(iii) Available content is not aligned to market and national development realities. (KII, August 2021)

(iv) Inappropriate programming where adult content is broadcast at unsuitable time

(v) Persons with disability experience barriers on format of broadcast services and access devices for example a person with hearing disability cannot consume most content except news for which sign language is provided

Devices

(i) Expensive devices for the public and for PWDs. In particular, "PWD devices are in the private market and sometimes, the market may not be sensitive to PWDs plight" (KII, June 10, 2021)

(ii) Affordability of Smart devices is barrier to the consumption of broadcast services. The migration forced the consumers to either purchase set top boxes or purchase digital set which are expensive

Awareness

Insufficient awareness of services, obligations and rights among broadcasting sector stakeholders

[31]World Economic Forum on Quality of Service Top of the Pile in 2020.

Consumer protection

Consumer protection is crucial for vulnerable groups who use broadcasting services including protection against inappropriate content, programming bullying and child online abuse. The findings on content and programming imply insufficient consumer protection from offensive content and inappropriate programming

Affordability

Cost of access devices and subscription to paid broadcast services is high and can go lower to spur access to services.

5. STRATEGIES TO IMPROVE COVERAGE AND ACCESS OF BROADCAST SERVICES

Broadly, the quality of broadcast service should be improved by expanding coverage, upgrading transmitter power of some transmitter sites and effectively enforcing license obligation regarding coverage and quality of service. The proposed strategies to improve broadcasting services are drawn from the findings of this survey where broadcast signal coverage gaps, challenges faced by service providers and by consumers of broadcasting services in Kenya are addressed. The strategies include:

- Increase coverage by deploying new transmitter sites, upgrading transmitter power and providing signal gap fillers
- Provision of broadcast studios that can be accessible to multiple broadcasters;
- Content development particularly relevant local content; including content in formats accessible to PWDs;
- Provision of devices, accessories and software for the PWDs;
- Creation of awareness to broadcasters and consumers;
- Promotion of research and innovations in the broadcasting sector;
- Promotion of effective competition in the broadcasting sub-sector to provide variety and lower prices;
- Periodic surveys to ascertain the progress of interventions made by the USF to fill the identified coverage and service gaps;
- Policy, legal and regulatory interventions as a foundation for a thriving broadcasting sub-sector in Kenya.

5.1 Supply side: Expansion of coverage of broadcasting services

The are gaps in the broadcast signal coverage Northern and Eastern parts of Kenya for both TV and radio; and in other parts of the country hence the need for interventions.

5.1.1 TV broadcasting Services

Proposals to improve broadcasting services are presented in Table 20.

Table 20. Proposal to improve TV broadcast signal coverage

SN	Thematic area	Proposal	Responsible
1	Coverage	• Provide transmitters in the unserved areas in the North and North Eastern Kenya • Provide low power transmitters (transposers) in areas with poor signal quality in the already served areas • Use FTA television broadcasting services to achieve 100% population coverage • Increase transmitter power at transmitter stations to increase signal coverage area including in Lokichogio, Marsabit, and Lodwar	• CA • Broadcasters/ service providers
2	Content and programming	• Promote content creation • Enforce programming code	• CA • Content

SN	Thematic area	Proposal	Responsible
			providers • Broadcasters
3a	Access (General)	• Promote access to affordable devices, such as Smart TV • Create awareness about broadcasting services	CA
3b	Access (PWD)	• Provide tax rebates on access devices for PWDs • Include sign language and other formats of access to broadcast content by PWDs • Promote research and innovation on access solutions for PWDs • Enforce provisions of barrier free access to services by PWDs according to the Constitution of Kenya 2010 and relevant laws • Implement pilot projects on PWD access to broadcast services • Subsidize the cost of acquisition of devices and software for PWDs	• National Treasury • CA • NCPWD • APDK
4	Quality of signal	Monitor network performance and performance standards	Broadcasters
5	Quality of service to consumers	Enforce quality of service standards	Broadcasters
6.	Complementary infrastructure	Provide roads, electricity and security	• Ministry of Interior and Coordination of National Government • Ministry of Public Works

5.1.2 Radio Broadcasting Services

Arising from this survey, the following are the recommendations for radio broadcast services (See Table 21)

Table 21. Proposed actions for radio broadcast services

SN	Thematic area	Proposal	Responsible	Remarks
1	Coverage	Introduce digital audio broadcasting	• CA • Broadcasters	• DTAB will provide more radio channels hence more broadcasters

				particularly in the urban areas[32]
		License more service providers	CA	• Having more providers can increase coverage to remote areas and improve the quality of service
		Provide transmitters sites in rural areas	CA Service providers	
		Provide low power transmitters in the poor signal quality areas in the already served areas	CA Service providers	
		Provide 100% FTA FM radio broadcast services coverage to the population	Service providers	Radio set is most affordable to most Kenyans
		*I*ncrease coverage area at sites with low power - 200 Watts to 2 kW) - ref. s7.1.2	CA Service providers	To ensure larger coverage are than it is currently
2	Access (PWD)	• Provide devices with close captioning • Provide devices with narrators • Promote research and innovations aimed at ensuring access to radio by people with hearing and other disabilities	• CA • NCPWD • Broadcasters	This will ensure barrier - free access to broadcast services by PWDs

The proposals for quality of broadcast signal, quality of service to consumers, content and deployment approach similar to those for TV broadcast.

5.1.3 Proposals for Sustainability and promotion of Community Broadcasters

Overall, the sustainability of community radio and television services can be enhanced by refocusing their business model and using volunteers across diverse political, social and economic fields from those communities as resource persons to create and disseminate content. From a regulatory perspective, community broadcasting service can be further developed by

[32] There is scarcity of FM radio frequencies in urban areas particularly Nairobi

i. Availing frequencies for community broadcasters, especially FM frequencies in urban areas and rural areas where the spectrum is fully allocated
ii. Promote excellence in the broadcasting sub-sector including through the Kuza awards for all broadcasters,
iii. Creating awareness of the community broadcaster mandate and enforcing it to ensure that they focus on their core mandate, are innovate, and enlist the support of volunteers within the community in which they operate
iv. Capacity building for community broadcasters
v. Enhanced programming and relevant content
vi. Effective community involvement

5.1.4 Capacity Building

Capacity needs to be built to create growth clusters and facilitate synergy effects in the broadcasting sector. Further, capacity building is needed in the whole media and entertainment ecosystem including in Augmented reality, creativity, film production etc.

The community broadcast stations owners need capacity building on their mandate according to their license and regulations to be able operate sustainably. The capacity building should include skills on how to engage community volunteers to patronise their stations and fund raise to sustain the stations.

5.2 Demand side: Improvement of access to broadcasting services

The following (Table 22) are broadcast services demand side recommendation comprising devices, affordability and capacity building

Table 22. Demand side recommendations

SN	Thematic area	Proposal	Responsible
1	Devices	Promote and support acquisition of TV broadcast access devices including digital TVs devices for the general public and for PWDs through tax reduction; and subsidies	Treasury CA
2	Affordability	i. Promote effective competition in the provision of broadcast services to drive subscription/ usage fees down ii. Promote facilities sharing to reduce cost of provision hence affordability	CA Service providers
3	Consumer education	Create awareness to the public on broadcast services including on their rights and obligations	CA MCK
4	Consumer protection	Enforce consumer protection regulations regarding content, programming and privacy	CA MCK
5	Quality of service	i. Conduct periodic broadcast service consumer satisfaction surveys to track progress ii. Enhance enforcement of quality of service regulations	CA

5.3 Policy, legislation and regulation

The regulatory framework for the broadcasting sub-sector is sufficient save for regulation of emerging technologies and disruptive services that constitute novel focus areas for the regulator. The general operating environment is enabling and predominantly functional. Action areas that have been identified for improvement include enforcement of intellectual property rights, harmonization of regulatory processes, and regulation and mainstreaming interventions for PWDs, and promoting cross-sectoral research in regulation of emerging technologies and services (see Table 23).

Based on the findings of the survey, the following are the Policy, legal regulatory interventions that are required to address the gaps that were identified from both the supply and demand perspectives of the broadcasting sub-sector (see Table 23).

Table 23. Proposed policy, legislation and regulation actions

SN	Proposal	Action	Responsible
1	Provide enabling legal framework	Amend KICA, 1998 to include new broadcasting service categories	Parliament, CA, MOICT, MCK
2	Provide enabling regulatory framework	i. Conduct regulatory impact analysis to inform further regulatory action	CA
		ii. Harmonize regulations on programming code and classification (classification KFC and KFCB, and programming Code (CA and Media Council)	Parliament, CA, Broadcasters, Content Creators, Media Council
		iii. Make regulations for OTT/ online broadcasting services and other emerging service categories and technologies including video on demand (VOD)	CA, Broadcasters, Content providers
		iv. Regular review of regulations to carry mandatory obligations and quality of service for public broadcasting	CA, MOICT
		Introduce digital terrestrial audio broadcasting (DTAB)	
3	Mainstream PWDs interventions according to the Constitution and applicable laws	i. Expand the use of sign language and enforce the requirement of sign language by all service providers	CA, (APDK, NCPWD)
		ii. Enforce the provisions of the Constitution of Kenya 2010, laws and regulations regarding barrier free access to services by PWDs including the design of broadcast content and programs that are inclusive of PWDs	CA,
		iii. Support acquisition of equipment and services necessary to implement close captioning on flagship shows	CA (APDK, NCPWD) Independent content providers
		iv. Provide incentives for innovators to create of content that fit the needs of PWDs	CA (APDK, NCPWD)
		v. Sensitize and train of staff on	

SN	Proposal	Action	Responsible
		service provision to persons with disabilities; vi. introduce license requirements for structures and systems that ensure persons with disabilities access services	
4	Support local content production	i. Define online content creators under the Media Council Act 2013; KICA 1998 ii. Harmonize content classification standards	KFC, KFCB, CA
5	Enforce Intellectual Property Rights (IPRs)	i. Create awareness on IPRs ii. Enhance inter-sectoral enforcement efforts e.g. requiring ISPs to pull down infringing content upon notification and verification of infringement	KECOBO CA, KECOBO, ISPs
6	Capacity building	Create awareness to consumers and broadcasters on services, regulations governing broadcasting services	CA
7	Consumer protection	Operationalize consumer protection unit	CA

5.4 Open Access Broadcasting Facilities Projects

It is proposed that innovative approaches be adopted to expand broadcast services to unserved and underserved areas in both urban and rural areas. Three possible are models proposed to cover the underserved areas are as follows: -

(i) Building a multi-tenant transmitter site for maximum coverage of the area. The site to accommodate FM radio and DTT broadcasting stations
(ii) Building of a transmitter site and a studio centre similar to studio Mashinani project that can accommodate multiple FM radio and DTT broadcasters.
(iii) Building a multi user studio that can accommodate many broadcasters.

5.4.1 Building Multi-tenant Transmitter Site

The site should have one DTT facility that can accommodate up to 30 TV channels and FM radio facility which can accommodate 8 FM radio stations with room for future expansion. The facility can be tendered to eligible BSDs providers to select the best cost of construction, equipment supply and installation; and best rental charge to broadcasters. The essence of the project is to encourage attainment of universal service coverage obligation for the national public broadcaster KBC, and commercial broadcasters, and also encourage community broadcasters to development local content and talent. The funding of the project to be the USF subsidy. The proposed sites are Kakuma, Loyangalani, Moyale, Mandela and El Wak.

5.4.2 Building a Transmitter Site and Studio Centre

In this scenario a transmitter station at designated site and a studio centre at the associated County headquarters is proposed. In this case, the Studio centres will be in Lodwar to serve Kakuma and Loyangalani sites, Moyale and Mandera to serve El Wak

and Mandera sites. Again, the studio project can be based on the "Studio Mashinani" model and there should be an understanding that the facility will used to develop local talent and that the facility should be available for hire by other broadcasters.

5.4.3 Studio Centre

During the baseline survey, broadcasters indicated plans to have studio in all the 47 Counties in Kenya. This should be supported by the USF with priority being given to Lodwar, Moyale and Mandera in the first year to enable development of broadcasting services in these underserved areas. It is proposed that the operations of the studios be subsdized by the USF.

5..4 Provision of Open Access Studio Centres

There are existing "Studio Mashinani" centres in Nairobi, Kisumu, Mombasa, Muranga and Kitui. It is proposed to established open access studios in Lodwar, Marsabit, Mandera and Tana River in collaboration with other agencies such as Huduma centres. Further extension of open studios is recommended. It was found that KBC was planning to extend to extend its "Studio Mashinani" to all the Counties in Kenya and this may be supported depending on merit alongside other unserved areas.

5.6.5 Collaborative research

There are a number of areas that require collaborative research comprising government, academia and private and civil society to generate evidence to guide further development of the broadcasting sub-sector to enhance its contribution to the socio-economic development. These areas include local content in general and for PWDs, access devices and software for PWDs; OTT services impact on broadcasters and their regulations, and social and psychological implications of content and programming among other areas. Other areas are IoT for TV and radio experience.

5.7 Best practices for Broadcasting Services Provision

5.7.1 International best practices for Broadcasting

Some of the international best practices for broadcasting include adoption of emerging technologies, partnerships and innovative business models.

5.7.1.1 Adoption of Emerging Technologies to deliver broadcasting services

Some of the broadcasting technologies available for the further expansion of TV reach and enhancement user experience include:

- Digital terrestrial audio broadcasting (DTAB) - this is the emerging technology for audio broadcasting which can be introduced to avail more audio channels of broadcasters
- **Collaborative technologies** comprising internet, broadcast and broadband including online broadcasting which can be deployed to augment accessibility for alternatively-abled persons
- **Next Generation Networks (NGN) including 5G for TV in future**. Invariably spectrum management and allocation become a focus area especially in the urban areas.

- Broadcasting satellites - these can be where terrestrial deployment is not feasible with affordable terminal equipment and encouraging some public free service especially in sub-locations where topography affects the signal reach of transmitters including in sparsely populated nomadic areas of northern and north eastern Kenya - Turkana, Marsabit, Madera and Samburu among others
- Cloud storage of content to enable consumers access broadcast content for both voice and video - this is mainly for on-demand services to supplement traditional service offerings and expand consumer choice
- Integrated digital television (iDTV) - this is already happening and can be expanded and awareness created
- Internet of Things (IoT) - this is important for interactive broadcasts
- Internet technologies can also be used to extend broadcasting services over telecommunication networks including over the mobile networks.
- Augmented and virtual reality is another area to explore through use cases

5.7.1.2 Partnerships

These can take the form of sharing facilities including towers, transmitters, studios, communication ducts among others etc. These include shared broadcast infrastructure (towers, antenna, TV transmitter) to be implemented by broadcast signal distributors (BSD), common studios to be used by all broadcasters on need basis, and collocation of cables in ducts.

5.7.1.3 Innovative business models for broadcasting sub-sector

The focus on core competencies and outsourcing non-core activities is crucial for the efficiency of the broadcasting sector. For example, new broadcasters should lease transmitter capacities from signal distributors rather than building transmitters; further, studios can be shared to minimise the inefficiencies associated with duplication of facilities.

5.7.2 Indicative Partnerships in Broadcasting services

5.7.2.1 PPP with telecommunication companies

Mobile telephone companies have the highest penetration in terms of signal coverage. Safaricom has over 2500 transmitter/receiver sites and American Tower Company (ATC) which serves the other mobile providers has over 2000 transmitter/ receiver sites. ATC has adapted the model of a multi-tenant format, whereby its site can accommodate many service providers in the radio signal distribution. There is a need for the broadcasters to partner with these infrastructure service providers in order to expand their coverage especially in the remote and underserved areas and areas with poor signal reach such as in the valleys.

The totally underserved areas of Lokichar, Lokichogio, Maralal, Loyangalani, Hola, Moda Gashe, Moyale, El Wak and Mandera may need intervention of CA, with the use of USF to build multitenant sites to cater for TV and radio broadcasting services at a cost of KES 60 million per DTT transmitter for the first year, then 8 million annually for OPEX as subsidies for green filed transmitter stations and KES 66 million for a broadcast studio (CAPEX: 55; OPEX: 11). Such sites can be maintained by Signet or any other

BSD, but regulated by CA so that the rent is at a minimum just to cover the operational expenses. This will encourage the broadcast signal distributors to move to those unprofitable areas. PANG indicated the willingness to partner with other service providers to share facilities in the framework of multi-tenant sites.

5.7.2.2 Government Ministries

The broadcasting service providers are currently partnering with government ministries to provide information to their customers. The main ones are: -

(j) Ministry of ICT, Innovation and Youth Affairs through KNA (Kenya News Agency)

KNA has 70 news gathering offices across the country. It is one of the major news providers for Kenya Broadcasting Corporation.

Kenya Broadcasting Corporation has partnered with the Ministry of ICT, Innovation and Youth Affairs in the studio Mashinani project. Currently there are six developed sites in Komarock, Machakos, Mombasa, Gatanga, Kitui; and Kisumu. These sites offer studio facilities to the youth. Currently the main users of these studio facilities are local musicians who record their music. Kenya Broadcasting Corporation provides the studio facility, maintain the studios and offer a producer to assist the young talents. They also expose them in their Y254 channel so that their contents are available to the public. KBC is proposing to have similar facilities in all the counties. This will greatly improve the production of local content and even spur the growth of local language broadcasting services providers.

5.7.2.3 PPP with learning institutions

Kenya Broadcasting Corporation has partnered with the Ministry of Education in the learning via broadcasting services, especially during this COVID 19 period. KICD has put its learning material in the cloud, and is currently running the Education channel. Mount Kenya University has introduced distance running in its TV47 channel. On overall more ministries need to partner with broadcasters in order to disseminate information to the people.

6. FINANCIAL MODEL

6.1 Financing model

The proposed financing model will guide in determination of a USF subsidy for availing broadcasting service to underserved sub-location in Kenya. The subsidy will cover both capital and operational expenditure. Based on the survey data from both quantitative survey, key informant interviews and focus group discussions. Subsidy funding will be required for the following three scenarios:

i. Building a completely new transmitter station and studio (greenfield station and studio)
ii. Extending broadcasting service beyond the existing coverage area
iii. Boosting broadcast signal in areas that are covered but have poor signal quality
iv. Building broadcast studios in counties

Further, the USF will be used to create awareness and build human capacity in the broadcasting sub-sector including on content creation since gaps were identified in this and other areas.

6.2 Objective and output of the financial models`

The objective of the financial model was to assess the proposed models of promoting of public/private/community provision of broadcasting services and provide guidelines on appropriate spending levels for the identified unserved and/or underserved locations. This objective was achieved by forecasting revenues, operating expenses and set-up costs for broadcasting services. The model considered a one year rolling period for 5 years.

To determine the appropriate spending levels for the identified sites, considerations were made for location and size of coverage in square kilometers, population size, demographic composition and percentage of viable consumers, economic conditions of the location, security, current service level and expected competition, linkages with the rest of the national economic activities, current infrastructure among others. In addition, engineering estimates were used to determine the capital expenditure requirements for each set up line.

The model outputs include forecast income and expenditure statement for each year running for five years, fixed asset/capital expenditure budget and cash flow statement which informs the subsidy financing needs for each site, model of intervention and sub-location.

6.3 Structure and Components of the model

Each major component has its own labelled excel worksheet with formulas and links to other worksheets culminating in the final output worksheets and a summary for the models. Table 24 highlights the structure and components of the model.

Table 24: Structure of the financial model

Assumptions sheets	Calculation Sheets	Output sheets	Auxiliary sheets
Assumptions	G.Field	Dashboard	Table of Contents
Notes	DTTG.Field	SubLocSubsidy	Map
SubLocData	FMG.Field	SiteSubsidy	Temp
	SiteUpgrade		
	DTTGapFill		
	FMGapFill		
	Studio		

(1) Assumptions sheets

Assumptions: Inputs used in allocating subsidies to selected sites and sub-locations.
Notes: Explanation of inputs used across the entire financial model.
SubLocData: Sub-location inputs

(2) Calculation sheets

G.Field: This is a complete financial model including inputs, calculations and outputs of revenue, operating costs, set-up costs and financial statements for a new "greenfield" and efficient DTT and FM transmission and broadcast station.
DTTG.Field: This is a complete financial model including inputs, calculations and outputs of revenue, operating costs, set-up costs and financial statements for a new "greenfield" and efficient DTT transmission and broadcast station.
FMG.Field: This is a complete financial model including inputs, calculations and outputs of revenue, operating costs, set-up costs and financial statements for a new "greenfield" and efficient FM transmission and broadcast station.
SiteUpgrade: This is a complete financial model including inputs, calculations and outputs of revenue, operating costs, set-up costs and financial statements for the extension of service of an existing station.
DTTGapFill: This is a complete financial model including inputs, calculations and outputs of revenue, operating costs, set-up costs and financial statements for an area, without DTT signal coverage, that requires a low power transposer to ensure adequate coverage.

FMGapFill: This is a complete financial model including inputs, calculations and outputs of revenue, operating costs, set-up costs and financial statements for an area, without FM signal, that requires a low power transposer to ensure adequate coverage.
Studio: This is a complete financial model including inputs, calculations and outputs of revenue, operating costs, set-up costs and financial statements for an open access studio facility to provide broadcasting services.

(3) Output sheets
Dashboard: This is a summary of outputs derived from the calculation sheets.
SubLocSubsidy: This is a summary of the proposed subsidies to be allocated to unserved and under-served sub-locations.
SiteSubsidy: Calculation of subsidies to be allocated to unserved and under-served sites.

(4) Auxiliary sheets
Map: Navigation tool.
Table of Contents: Lists details on development of the financial model and various worksheets within the model.
Temp: Temporary sheet referred to when creating new sheets in financial model.

6.4 Model Output

The broadcast model whose outputs comprise the following items was developed:

- Forecast five-year worksheet for new "greenfield" and efficient DTT and FM broadcast station
- Forecast five-year worksheet for new "greenfield" and efficient DTT broadcast station
- Forecast five-year worksheet for new "greenfield" and efficient FM broadcast station
- Forecast five-year worksheet for extension of service of an existing station
- Forecast five-year worksheet for an identified gap without DTT signal that requires a low power transposer to ensure adequate coverage
- Forecast five-year worksheet for an identified gap without FM signal that requires a low power transposer to ensure adequate coverage
- Forecast five-year worksheet for an open access studio facility to provide broadcasting services
- Forecast annual operating costs subsidy and capital expenditure subsidy allocation per site and sub-location. This subsidy allocation is based on revenue, operating costs and set-up costs for each proposed model of intervention

6.5 Assumptions for setting up a broadcasting station in undeserved area

The following assumptions (Table 25) were used to vary the base assumptions and establish the financial implication of setting up sites in different regions with different variables.

Table 25: Assumptions for setting up a broadcasting station in undeserved area

SN	Variable	Remark/s
1	Hardship	This is a consideration put in place for employees working in hardship areas
2	Power connection	Given that power access and reliability in different regions varies, associated costs are expected to also vary
3	Security	The level of security per region will cause a variation in provision of security services
4	Accessibility	Ease of access to a transmitter site will cause variations in installations and maintenance of facilities

6.6 Typical costs for the finance model

From the findings of this survey, we would recommend that the necessary facilitation be provided to enable signal distributors set up combined DTT and FM greenfield stations as the cost of setting up and running this station would be significantly lower than that of setting up and running two separate DTT and FM greenfield stations. When we lay the two options side by side, a 'combined' transmitter station would require a total of KES. 69 million to set up and run over the 5-year forecast period while DTT and FM transmitter stations would require approximately KES. 106 million to set up and run separately over the same period. It would cost a signal distributor KES. 37 million less to establish and run a 'combined' greenfield station over the forecast period. Moreover, the total CAPEX and average annual OPEX for a 'combined' greenfield station over the forecast period is approximately KES. 52 million and KES. 3 million respectively. The total CAPEX and average annual OPEX for a DTT greenfield station over the forecast period is approximately KES. 62 million and KES. 2.3 million respectively; while the total CAPEX and average annual OPEX for an FM greenfield station is approximately KES. 44 million and KES. 1.3 million respectively. In summary, the differential CAPEX and average annual OPEX for the two options is KES. 31.5 million and KES. 0.8 million respectively, serving to further favor the establishment of a 'combined' greenfield station. Although there is currently no policy framework in place to guide the establishment and operation of 'combined' greenfield stations, the breakdown above stands to justify its development as this will lay the necessary groundwork for signal distributors to then adopt this option.

A signal distributor requires a total funding of KES. 69 million to set up and operate a 'combined' greenfield transmitter station over a 5-year period in an underserved area. It costs approximately KES. 52 million to set up the transmitter station and a further KES. 3 million per year to operate it, after accounting for income generated. The transmitter station has a negative NPV of KES. 53 million and no payback period making it fully reliant on external financing to operate as a going concern. The station would need to generate approximately 3 million per annum to be self-sustainable by the 5th year.

A signal distributor requires a total funding of KES. 62 million to set up and operate a DTT greenfield transmitter station over a 5-year period in an underserved area. It costs approximately KES. 48 million to set up the transmitter station and a further KES. 2.3 million per year to operate it, after accounting for income generated. The transmitter station has a negative NPV of KES. 47.5 million and no payback period making it fully reliant on external financing to operate as a going concern. The station would need to generate approximately 2.7 million per annum to be self-sustainable by the 5th year.

A signal distributor requires a total funding of KES. 44 million to set up and operate a 'combined' greenfield transmitter station over a 5-year period in an underserved area. It costs approximately KES. 36 million to set up the transmitter station and a further KES. 1.3 million per year to operate it, after accounting for income generated. The transmitter station has a negative NPV of KES. 34.5 million and no payback period making it fully reliant on external financing to operate as a going concern. The station would need to generate approximately 1.4 million per annum to be self-sustainable by the 5th year.

Additionally, to extend services of an existing site, a signal distributor requires a total funding of KES. 23 million to upgrade and operate the existing transmitter station over a 5-year period in an underserved area. It costs approximately KES. 16 million to upgrade systems at the transmitter station and no further incremental costs to operate it, after accounting for income generated. The transmitter station has a negative NPV of KES. 17 million and no payback period making it fully reliant on external financing to operate as a going concern. The upgraded site would need to generate approximately 1.3 million per annum to be self-sustainable by the 5th year.

As for FM signal coverage gaps, a signal distributor requires a total funding of KES. 5 million to set up and operate low power FM transposers to ensure adequate coverage over a 5-year period in an underserved area. It costs approximately KES. 3 million to set up a low power FM transposer and a further KES. 0.3 million per annum to operate it, after accounting for income generated. The low power transposer has a negative NPV of KES. 3.5 million. The low power transposer would need approximately 0.4 million per annum to remain operational over the forecast period.

Further, in an area with a DTT signal coverage gap, a broadcaster requires a total funding of KES. 21 million to set up and operate a low power DTT transposer to ensure adequate coverage over a 5-year period in an underserved area. It costs approximately KES. 11 million to set up a low power FM transposer and a further KES. 1.6 million per annum to operate it, after accounting for income generated. The low power transposer has a negative NPV of KES. 14.4 million. The low power transposer would need approximately 2 million per annum to remain operational over the forecast period.

Furthermore, a broadcaster requires total funding of KES. 74 million to set up and operate an open access studio facility over a 5-year period in an underserved area. It costs approximately KES. 53 million to set up the studio and a further KES. 3.4 million per year to operate it, after accounting for income generated. The transmitter station has a negative NPV of KES. 56 million and no payback period making it fully reliant on subsidies to operate as a going concern. The studio would need to generate approximately 4 million per annum to be self-sustainable by the 5th year.

6.6.1 Cost assumptions used in the model

The Table 26 shows a breakdown of the set up and operating cost assumptions for each intervention.

Table 26: Cost Assumptions

Costs	Greenfield	DTT Greenfield	FM Greenfield	Site Upgrade	DTT Gap Fillers	FM Gap Fillers	Studio
Set Up Costs							
DTT transmitter	10,000,000	10,000,000	-	10,000,000	4,300,000	-	-
DTT antenna system	3,000,000	3,000,000	-	-	2,000,000	-	-
FM radio transmitter	3,000,000	-	3,000,000	3,000,000	-	500,000	-
FM radio antenna system	1,000,000	-	1,000,000	-	-	200,000	-
FM radio studio equipment	-	-	-	-	-	-	5,000,000
TV studio equipment	-	-	-	-	-	-	25,000,000
TV Transmission link system	1,800,000	1,800,000	-	-	1,800,000	-	1,800,000
FM Transmission link system	300,000	-	-	-	-	300,000	300,000
TV Profanity delay equipment	800,000	800,000	-	800,000	-	-	800,000
FM Profanity delay equipment	200,000	-	200,000	200,000	-	-	200,000
Studio logging equipment	150,000	-	-	-	-	-	150,000
Field production equipment	-	-	-	-	-	-	5,000,000
Transmitter building	5,000,000	5,000,000	5,000,000	-	-	-	-
Mast	20,000,000	20,000,000	20,000,000	-	1,500,000	1,500,000	-
Electricity connection to site	2,000,000	2,000,000	2,000,000	2,000,000	-	-	-
Land purchase	1,000,000	1,000,000	1,000,000	-	-	-	-
Standby generator	4,000,000	4,000,000	4,000,000	-	-	-	-
Studio furniture & fittings	-	-	-	-	-	-	13,000,000
Other fittings & equipment	-	-	-	-	1,200,000	500,000	2,000,000
Total Set Up Costs	**52,250,000**	**47,600,000**	**36,200,000**	**16,000,000**	**10,800,000**	**3,000,000**	**53,250,000**
Annual Operating Costs							
Annual Operating Costs	**7,608,794**	**7,094,911**	**5,835,067**	**3,470,096**	**1,956,073**	**375,743**	**10,611,290**

The detailed subsidies are indicated in appendix IX.

7. FIVE YEAR ACTION PLAN

The proposed five year plan for the provision of services in the underserved and unserved areas is described in this section. Based on the findings of this survey of the broadcasting services from the demand and supply perspectives, there is need to improve broadcasting services by deploying infrastructure in "greenfield" locations, upgrading some existing sites by increasing transmitter power, boosting signals in areas with coverage but where "black spots" exist, that is "signal gap filling", and provision of broadcast studios that can be used on an open nondiscriminatory access basis.

7.1 Summary of Interventions for TV and Radio coverage

A summary of interventions to address the broadcasting access gaps is presented in Table 27. They comprise greenfield stations, gap fillers, transmitter power upgrades and broadcast studios

Table 27: Interventions to fill the identified TV and radio broadcast coverage gaps

SN	SOLUTION	DTT	FM RADIO
1	Greenfield	9	7
2	Gap fillers	122	77
	Gap fillers for greenfield sites in year 3 (three per site for 10 sites)	*30*	*30*
3	Transmitter power upgrade	3	2
	Green filed site options		
1	*Integrated (DTT and FM radio) sites*	*6*	
2	*Stand alone DTT sites*	*3*	
3	*Stand alone FM radio site*	*1*	
4	*Multi-tenant broadcast studios for both DTT and FM radio*	*5*	

These interventions will be supported by research, creation of awareness, content production, availability of suitable affordable devices, including for PWDs, and legal and regulatory interventions.

7.1.1 New "greenfield" broadcast sites

The prioritization of interventions for underserved/ unserved sub-locations is presented in Table 28 where the 10 greenfield sites. They include sub-locations in Mandera, Marsabit, Wajir and Turkana where a total of 10 new transmitters are proposed.

Table 28: Greenfield sites: List of under-served/ unserved sub-locations (Year 1)

County	Unserved Sub-Locations	Total	% Unserved Sub-Locations	FM Radio Only	DTT Only	Both FM Radio and DTT	Current status
Garissa					Dadaab	Mado Gashe	
Mandera	166	166	100		Takaba	El Wak	100% unserved
						Mandera	
Marsabit	80	136	58.82			Loiyangalani	Marsabit town

						Moyale	and the surrounding areas are served by both television and FM radio
Turkana	143	165	86.67	Lokitaung	Kakuma	Lokichar	• Lodwar town and its surroundings are served by both FM radio and television • Lokichogio also served by television.
Wajir	221	255	86.67			Wajir	Wajir town and the surrounding areas are served by both television and radio

The underserved areas in Table 28 will be the highest priority on intervention. They will involve the provision of transmitter stations and broadcasting studios.

7.1.2 Transmitter power upgrade sites - Extension of service from existing sites

The lower the transmitter power the smaller the signal coverage area. The following is a list of transmitter sites which need power upgrade

Table 29: Transmitter power upgrades

Broadcast Service	Site	Current power	Upgrade To
FM Radio	Marsabit	100w	2kw
	Lokichogio	1000w	2kw
DTT	Marsabit	200w	2kw
	Lokichogio	250w	2kw
	Lodwar	250w	2kw

As seen from Table 33, the indicated sites' transmitter power ranges from 100w to 1000w. All these sites are proposed to be upgraded to 2kW to achieve larger coverage area.

7.1.3 DTT signal gap fillers

In the following broadcasting signal coverage areas, there are "black spots" - areas without signal - require low power transposers to ensure adequate coverage: West Busia, West Siaya, North Laikipia, West Timau, North of Machakos, and Lower Embu (see Table 30).

Table 30: DTT signal gap filling (Year 3 onwards)

County	Site	Number of low power transmitters
Busia	To the west	1
Siaya	To the west	1
Laikipia	To the west (Timau)	1
Machakos	To the north	1
Embu	Lower Embu	Same one serving Machakos
Kwale	Vanga (South Coast)	1

While the gap fillers (Table 30) are proposed for the third year onwards, the deployment of further signal gap fillers (low power transmitters) will depend on signal measurements and audience surveys which should be done to reveal areas that may be experiencing poor signal. A detailed list of both DTT and FM radio gap fillers comprising 152 DTT and 107 FM radio is appended (Appendix II)

7.1.4 Open access studio facilities for broadcasters

Sharing of facilities has the implication of reducing costs and the benefits of reduced costs can be extended to consumers thus improving affordability of services. The following open access facilities are proposed to ensure the availability and accessibility of broadcast services in the indicated locations.

Table 31: Open access studio facilities (Year 1)

County	Studio Centre at County Headquarters	Priority	Number of Sub-Location Unserved (n)	Remarks
Mandera	Mandera	1	100% unserved (166).	To serve transmitters at Mandera, El Wak and Takaba
Turkana	Lodwar	2	86% unserved (143 out of 165).	To serve transmitters at Lokichogio, Kakuma, Lokitaung, Lodwar and Lokichar.
Wajir	Wajir	3	86% unserved (221 out of 255).	To serve transmitters at Wajir, Modogashe and Dadaab
Marsabit	Marsabit	4	58% unserved (80 out of 136)	To serve transmitters at Marsabit, Loyangalani and Moyale
Elgeyo Marakwet	Iten	5	62% unserved (129 out of 206)	To serve transmitters around Iten

Besides the identified gaps (Table 35), DTT coverage implementation survey is recommended for low power transmitters for additional locations in the following counties within the second year since signal gaps were also discerned in these locations

1. Nandi
2. Lugari and Uasin Gishu

3. Kerio valley, Markwet, Baringo and West Pokot
4. Transmara, Bomet, Buret, North Narok
5. Laikipia
6. Makueni
7. Tana River around Witu and Garsen
8. South Coast (South of Shimba Hill).

The foregoing sites should be addressed alongside, but after those named as "gap fillers"

7.2 Proposed Approach to Deployment of service per Site

With regard to providing services to the unserved/ underserved areas, the following are greenfield location for transmitter site construction: Kakuma and Lokichar. These two transmitters will greatly improve the coverage in the North Western Kenya. The transmitter sites will initially be built to transmit FM radio signal. Further, the following three areas will need coverage: Moyale, El Wak and Mandera.

The following is the proposed Five Year Plan for the roll out pf universal broadcast services in the under/unserved areas in Kenya (Table 36).

Table 32: Proposed phasing of deployment for a typical site - An example

Location/ Year	1	2	3	4	5	Remark
Kakuma	Radio	TV				Use studio in Lodwar
Lokichar	Radio	TV				Use studio in Lodwar
Moyale	Radio	TV				Use the studio at Marsabit
El Wak	Radio	TV				Studio in Mandera
Mandera	Radio	TV				New studio in Mandera town
Hola	Provide FM radio					New Radio studio in Hola
Garsen	Provide TV					New TV studio in Hola

As seen from Table 32, Hola has terrestrial TV broadcast service, therefore FM radio should be introduced at the site. Similarly, since Garsen already has FM radio, there is need to introduce TV service at the site. In addition, though studios have been proposed, there is an option for new and even existing broadcasters to lease studio space/ time once the studios are available. Consequently, it is proposed that for each site FM radio broadcast be provided first (Year 1) followed by TV (from Year 2) as is indicated in Table 32 because radio is more affordable compared to TV. Year 3, Year 5 and Year 5 should be for identifying and filling signal black spots (Year 3), network optimisation (Year 4) and appraisal and review (Year 5).

7.3 Prioritisation of Subsidy proposed Interventions

Upon identification and analysis of all the costs (CAPEX and OPEX) involved in setting up and operating a broadcast service in a site, and performing financial analysis, the estimated subsidies for capital expenditure and annual operating expenditure for the various categories of intervention: greenfield, site upgrade, signal gap fillers (FM and DTT), and broadcast studio are shown in Table 33.

Table 33: Projected for capital expenditure and annual operating expenditure

No.	Site	County	Intervention	Year
1	Mandera Town	Mandera	Greenfield	1
2	El Wak	Mandera	Greenfield	1
3	Takaba	Mandera	Greenfield	1
4	Moyale Town	Marsabit	Greenfield	1
5	Loyangalani	Marsabit	Greenfield	1
6	Mado Gashe	Wajir	Greenfield	1
7	Dadaab	Wajir	Greenfield	1
8	Kakuma	Turkana	Greenfield	1
9	Lokichar	Turkana	Greenfield	1
10	Lokitaung	Turkana	Greenfield	1
11	Garissa	Garissa	Site Upgrade	2
12	Lokichogio	Turkana	Site Upgrade	2
13	Wajir	Wajir	Site Upgrade	2
14	Maralal	Samburu	Site Upgrade	2
15	Lamu	Lamu	Site Upgrade	2
16	Kitui	Kitui	Site Upgrade	2
17	Busia	Busia	FM Gap Fillers	3
18	Siaya	Siaya	FM Gap Fillers	3
19	Timau	Laikipia	FM Gap Fillers	3
20	Machakos	Machakos	FM Gap Fillers	3
21	Embu	Embu	FM Gap Fillers	3
22	Vanga	Kwale	FM Gap Fillers	3
23	Nandi	Nandi	DTT Gap Fillers	3
24	Trans Nzoia	Trans Nzoia	DTT Gap Fillers	3
25	Vihiga	Vihiga	DTT Gap Fillers	3

26	Bomet	Bomet	DTT Gap Fillers	3
27	Makueni	Makueni	DTT Gap Fillers	3
28	Taita Taveta	Taita Taveta	DTT Gap Fillers	3
29	Kitui	Kitui	DTT Gap Fillers	3
30	Tana River	Tana River	DTT Gap Fillers	3
31	Mandera	Mandera	Studio	2
32	Lodwar	Turkana	Studio	1
33	Wajir	Wajir	Studio	1
34	Marsabit	Marsabit	Studio	1
35	Iten	Elgeyo Marakwet	Studio	1

During the third year 10 DTT and 10 FM radio gap fillers are proposed for the green field sites upon network optimization study which will show areas of “back spots” at a total cost of KES 800 million for three gap fillers at each DTT and FM radio site.

7.4 Summary of Cost of Five- year Implementation Plan

Table 34: Summary of Cost of interventions

SN	SOLUTION	DTT sites	FM Radio Sites	DTT costs	FM Radio costs	Sub-Total	
1	Greenfield	-	-	-	-		
2	Gap fillers	122	77	2,510,804,812	375,661,026	2,886,465,838	
3	*Gap fillers for greenfield sites in year 3 (three per site for 10 sites)*	*30*	*30*	*617,411,019*	*146,361,439*	763,772,458	
4	Transmitter power upgrade	3	2	90,451,446	45,100,964	135,552,411	
	Green filed site options					-	
1	*Integrated (DTT and FM radio) sites*		*6*		*541,763,827*	541,763,827	
2	*Stand alone DTT sites*		*3*		*249,223,658*	249,223,658	
3	*Stand alone FM radio site*		*1*		*65,375,333*	65,375,333	
4	*Multi-tenant broadcast studios for both DTT and FM radio*		*5*		*531,532,241*	531,532,241	**5,173,685,766**
	Other costs						
5	Content development				100,000,000	100,000,000	
6	PWD devices				50,000,000	50,000,000	
7	Research				50,000,000	50,000,000	
8	Creating awareness				100,000,000	100,000,000	
	GRAND TOTAL					**5,473,685,766**	

The proposed actions, risk mitigation and monitoring and evaluation are presented as Appendix I. Meanwhile, gap fillers will be needed for the new green field sites at the third year since the greenfield sites will have been implemented and when the need to boost signals will have been identified through optimization survey.

7.5 Disbursement of Subsidy

The disbursement of subsidy should be efficient - targeting the gaps according to priority and cost efficiency. In this regard, it is recommended that the subsidy be applied through:

a) Prioritising the interventions according to the proposed priority list
b) Invitation of bids to provide services in the gap areas and selection of the bidder with satisfactory quality solution for the gap areas and least request for subsidy
c) Provision of grants to public broadcaster by the government based on the broadcaster's plans that address national priorities including universal access to broadcasting services
d) Financial support for research and innovations in services and devices for both the general public and for PWDs through competitive bidding for these funds
e) Support to capacity building interventions in the broadcasting sector including for creation of awareness to the public

7.6 Sustainability of Interventions

Sustainability of the proposed interventions will be realised through reduction of operational expenditure by deploying:

a) Integrated (TV and Radio) transmitter stations and studio in the greenfield sites
b) Open access broadcast studios for both TV and radio
c) Infrastructure sharing by service providers to avoid duplication and hence reduce CAPEX
d) Business model innovations through specialisation along the broadcasting value chain including infrastructure, signal distribution, broadcasting and content creation/provision
e) Service innovations targeting unserved/inadequately market segments such as agriculture, health, education, science and technology, national values and ethos among others

Further, since the national public broadcaster (KBC) has USO to broadcast to the whole country there is need for continued government for it to meet this mandate. The broadcaster as the programming but broadcast infrastructure is lacking in the unserved/underserved areas that have been identified. tOnce infrastructure is provided through the proposed interventions, there is ready programming to be deployed which will partly sustain its own operations while the other commercial broadcasters will be attracted to those areas to offer innovative services without the need to incur high CAPEX.

The public broadcaster an also innovate its training programs for the sector and generate revenue that will enhance its sustainability. This notwithstanding, the recommended infrastructure sharing will reduce operational costs and enhance sustainability of the proposed intervention projects.

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9. APPENDICES

Appendix I: Proposed Actions, Risk assessment, and Monitoring and Evaluation

ACTIONS, RISK ASSESSMENT, MONITORING AND EVALUATION

The proposed action plans are intended to address signal coverage and service access gaps, challenges faced by both broadcasting operators in rolling out services; and by users in accessing TV and radio broadcast services. Further, regulatory interventions are proposed to increase coverage, access, and use of broadcasting services.

9.1 Coverage, access content, devices, quality of signal, and human capacity

The indicative actions for coverage, access, content, devices, quality of signal and human capacity (See Table 34)

Table 35 Proposals on coverage access, content, devices, quality of signal and human capacity

Gap	Action	KPI	Target	Resources (indicative)	Responsibility	Remarks
Coverage	Install new transmitter sites in unserved areas	% coverage of unserved areas	100%	KES100 million[33]	Signal distributors CA	Population is able to access broadcast signal
	Provide transposers/gap fillers	Signal strength	45dBµV/m	KES 25 million[34]	Signal distributors CA	Improved quality of broadcast signal
	Upgrade transmit power	Extended coverage	60 Km radius	KES 20 million	Signal distributor amd CA	Extension of broadcast coverage area
Content	Support local content production through funding	% of relevant local content in the broadcast	Increase by 10% of current level annually	KES 50 million[35].	CA, Content providers, Broadcasters, Ministry of the youth	Relevant local content is available
Devices	Support and enforce requirements for devices with PWDs access capabilities	Available devices for various PWD needs	100%	Demand to be quantified	Broadcasters NCPWD CA	Devices for various disabilities are available
	Subsidize the cost of PWD devices	Affordable devices	At least 10% decrease in price of devices from the current level annually	TBD	National treasury	Price of devices is reduced
Quality of signal	Enforce Quality of Signal regulations	• Broadcast signal strength • No noise	• At least 45dBuV /m • No		Service providers CA	Improvement of performance of broadcast network

[33] Approximate typical amount for a transmitter station
[34]Cost of the low power transmitter to boost poor and no signal areas of the unserved areas by the signal distributors.
[35] Setting up one Studio Mashinani

			interference			
Quality of service	Monitor Consumer Satisfaction with broadcast Service	Consumer satisfaction index	Increase by 10% from the current levels[36]	KES 10 million	CA	• Annual satisfaction survey • Improved consumer experience
Human capacity	Create awareness	% of population with knowledge of services rights and obligations.	Increase the level of awareness by 10% annually	KES 100 million	• CA • ICT Authority • Ministry of Youth • MCK	The population has knowledge of services rights and obligations
Research and innovation	Conduct research on broadcasting sector	No. of studies	One study in broadcast gap areas		• Government • Academia • Private sector • Civil society	Available evidence to inform decision
Policy,legal, regulation	Formulate polices, enact laws and make regulations	• Laws/amendments to laws on identified gaps • Regulations to operationalise recommendations on PWD, IPR, QoS, consumer protection (see Table 33b)	100	Continuous	• MoICT, I&YA • Parliament • CA	Available environment of the thriving of the broadcasting sector

Table 36: Policy, legislation and regulation

SN	Proposal	Action	KPI	Target	Resource	Responsible	Remarks
1	Provide	Remove overlaps on regulation	No overlaps in	100%		Parliament,	2021/2022

[36] Currently, the customer satisfaction index level is 73.2%

	enabling legal framework		regulation			CA, MOICT, MCK	
2	Provide enabling regulatory framework	i. Conduct regulatory impact analysis to inform further regulatory action	RIA completed	100%		CA	2021/2022
		ii. Harmonize regulations on programming code and classification (classification KFC and KFCB, and programming Code (CA and Media Council)	Harmonised regulation on content	100%		Parliament, CA, Broadcasters, Content Creators	2021/2022
		iii. Make regulations for OTT/ online broadcasting services	Regulation on OTTs	100%		CA, Broadcasters, Content providers	2021/2022
3	Mainstream PWDs	i. Expand the use of sign language and enforce the requirement of sign language by all service providers	Sign language for all programs	Increase of programmes with sign language interpretation by 20% annually from base line		CA, (APDK, NCPWD)	continuous
		ii. Enforce the provisions of the Constitution of Kenya 2010, laws and regulations regarding barrier free access to services by PWDs including the design of broadcast content and programs that are inclusive of PWDs	Barrier free access to all broadcast services by PWDs has been implemented by all media houses	20% increase in barrier free access for PWDs by annually		CA NCPWD Broadcasters Content providers	continuous

		iii. Support acquisition of equipment and services necessary to implement close captioning on flagship shows	Available and affordable PWDs devices and software	20% annual increase (from baseline) of PWDs have have suitable device		CA (APDK, NCPWD) Independent content providers	continuous
		iv. Provide incentives for innovators to create content that fit the needs of PWDs	Content producers sensitised Relevant content available	Quarterly Sensitisation of content creators		CA (APDK, NCPWD)	continuous
4	Support local content production	i. Define online content creators under the Media Council Act 2013; KICA 1998	i. Online content creators are defined in the law	100%	continuous	KFC, KFCB, CA	2021/2022
		ii. Harmonize content classification standards	ii. KFC and KFCB have harmonized content classification definition	100%			2021/2022
5	Enforce Intellectual Property Rights (IPRs)	i. Create awareness on IPR	No of awareness events	100%		KECOBO CA, KECOBO, ISPs	
		ii. Enhance inter-sectoral enforcement efforts including requiring ISPs to pull down infringing content upon notification and verification of infringement	Inter-agency platform on IPR established	100%			Continuous
6	Consumer protection	Operationalize consumer protection unit		100%		CA	Continuous

9.2 Monitoring and Evaluation framework

In this subsection, the monitoring framework is provided comprising – focus of evaluation, frequency, and responsibility for both TV and radio broadcast services in Kenya. The monitoring and evaluation framework for the TV broadcast services shown in Table 37.

Table 37. Monitoring & Evaluation for TV and Radio broadcast services

SN	Thematic area	KPI	Target	Frequency of Monitoring	Evaluation	Responsibility
1	Coverage	Availability of good broadcast signal coverage	100% of pop.	Quarterly	Annually	Broadcasters CA
2a	Access (General public)	Access to broadcast services	100%	Quarterly	Annually	CA
2b	Access (PWD)	Access to broadcast services	100%	Quarterly	Annually	CA
3a	Devices (General public)	Affordable TV & radio access devices	100%	Quarterly	Annually	Treasury
3b	Devices (PWD)	Affordable TV & radio access devices for PWDs	100%	Quarterly	Annually	CA, NCPWD Treasury
4	Content	No. of service providers with relevant local content	At least 40%	Quarterly	Annually	Content providers, CA, MCK, KFCB
5	Quality of services	Satisfaction level	At least 80%	Quarterly	Annually	Broadcasters CA,
6	Affordability	Price	At least 80% affordability [37]	Quarterly	Annually	CA
7	Consumer protection	% perception of protection[38]	100%	Quarterly	Annually	CA
8	Human resource	No. with relevant Expertise/ skills	At least 80%[39]	Annually	Annually	CA
9	Policy, Legislation and Regulation	Existence of enabling PLR	Continuous updating of laws to onboard emerging technologies and services and enforcement	Continuous	Annually	MOICT, I&YA National Assembly, Senate, MoICT, CA

[37] % of users who perceive the services as being affordable
[38] % of surveyed population who report that their rights are not violated by the TV broadcast services
[39] % of service providers reporting adequacy of technical/operational/business skills in their business

			of regulations			

9.3 Risk Management: Identification, Probability of Occurrence, Impact and Mitigation

The successful implementation of the recommendation made from this survey will depend on the effective risk management of various risks that are shown in Table 38.

Table 38. Risk management

#	Type of risk	Identification/Description	Probability of occurrence (L/M/H)	Impact of risk	Mitigation
1.	Market demand for online services	Risk arising from shifts in consumer media consumption and new models of product/service delivery)	Medium	Medium	Mandate infrastructure sharing to provide a uniform playing ground for all the industry players to adapt.
2.	Laws and regulations	Inadequate laws and regulations	Medium	High	• Public policy should strike a balance between the public and private sectors in broadcasting services • Forward looking regulations
3.	Pace of technological progress	• Increase in equipment obsolescence, • Increased costs of replacement of Equipment, • Reduction in revenues due to loss of coverage area	Medium	High	• Adoption of new technologies • Diversification of revenue streams • Increase Government funding/subsidy to public broadcasters
4.	Cyber security Breaches	Impact of hacking of broadcasters' website, demand of ransom, data confidentiality breaches)	High	Medium	• Take proactive approach to cyber security • Monitor social media accounts on relevant hacktivist campaigns • Proactively monitor for credential dumps relevant to your organization's accounts
5.	Strategic risks	Competition from non-traditional internet players, like Hulu, Amazon, Google and Netflix, offering diverse and	High	Medium	Review of strategic plans and responding to competition

		cheaper streaming alternatives)			
6.	Terrorism	Loss of life, risk of technical failure due to destruction of satellites, transmitter facilities, and network & information systems	Medium	High	• Provide insurance cover for accidental death and Equipment damage • Provide 24 hours security on key infrastructures such as transmission sites
7.	Unfair competition e.g. by OTTs	Loss of market by main stream broadcasting modes	High	Medium	Formulate and implement regulation for this category of services
8.	Signal interference	Poor quality of service	Medium	Medium	Monitor compliance and enforce sanctions for interference
9.	Signal piracy	Infringing on licensed service provider rights	Medium	Low	Make services affordable Impose and enforce sanctions for breach
10.	Accessibility by PWDs	PWDs not able to access broadcast services	High	High	• Support production of content in alternative access formats • Provide incentives for acquisition of access devices
11.	Regulatory overlaps (classification KFC and KFCB/Programming Code-CA and Media Council)	Brings confusion hence reduces efficiency	Medium	High	• Harmonise classification process • Allow viewer discretion for adult audiences especially for controversial content e.g. LGBQT
12.	Copyright infringement	Discouragement of creativity and denial of economic benefit to the creators of content, music etc.	High	High	Support IPR enforcement through capacity building and collaboration with agencies such as KECOBO

Appendix II. Broadcast signal gap filling

1. DTT Gap fillers

The following is a list of gap fillers associated with the main DTT radio transmitter sites

Table 39: DTT gap filler sites

SN	SITE	SITE NAME	NUMBER OF GAP FILLERS	TOTAL
1	Nairobi	Limuru	4	4
2	Mombasa	Mazeras	4	4
3	Kisumu	Kiboswa	4	4
4	Nakuru	Menengai	4	4
5	Nyeri	Nyeri Hill	4	4
6	Eldoret		4	4
7	Meru	Nyambene	4	4
8	Kisii	Nyanguru	4	4
9	Nyahururu	Nyandundo	3	3
10	Kericho	kericho	3	3
11	Naivasha		3	3
13	Narok		3	3
14	Kitui		3	3
15	Muranga		3	3
16	Embu		3	3
18	Taita	Vuria	3	3
19	Garisa	Garisa	3	3
20	Wajir	Wajir	3	3
21	Marsabit	Marsabit	3	3
22	Yala	Yala	3	3
23	Webuye	Webuye	3	3
23	Homa Bay	Homa Bay	3	3
24	Migori	Migori	3	3
25	Kakamega	Lukume	3	3
26	Kericho	Kericho	3	3
27	Kajiado (Namanga)	Namanga		
28	Machakos	Mua Hills	3	3
29	Samburu	Maralal	3	3
30	Makueni (kibwezi)	Kibwezi	3	3
31	Kwale	Kwale	3	3
32	Kilifi	Kilifi	3	3
33	Siaya	Bondo	3	3
34	Tana River(Hola)	Hola	3	3
35	Malindi	Mambrui	3	3
36	Lamu	Mpekeketoni		
37	Turkana (lokichogio)	Lokichogio	3	3
38	Turkanam(Lodwar)	Lodwar	3	3
			122	122

2. FM radio Gap fillers

The following is a list of gap filler associated with the main FM radio transmitter sites.

Table 40: FM Signal Gap fillers

SN	AREA	MAIN TRANSMITTER SITE	NUMBER OF GAPS	TOTAL
1	Nairobi	Limuru	4	4
2	Mombasa	Mazeras	4	4
3	Kisumu	Nyamninia	4	4
4	Nakuru	Menengai	4	4
5	Eldoret		4	4
6	Nyeri	Nyeri Hill	4	4
7	Meru	Nyambene	4	4
8	Kisii	Nyanguru	4	4
9	West Pokot	Kapenguria	3	3
10	Malindi	Mambrui	3	3
11	Kajiado	Namanga		
12	Tana River	Garsen	3	3
13	Baringo	Timboroa	3	3
14	Taita Taveta	Vuria	3	3
15	Turkana	Lodwar	3	3
16	Turkana	Lokichogio	3	3
17	Samburu	Maralal	3	3
18	Marsabit	Marsabit	3	3
19	Wajir	Wajir	3	3
20	Garissa	Garissa	3	3
21	Kajiado	Kajiado	3	3
22	Kitui	Kitui	3	3
23	Lamu	Lamu	3	3
			77	77

Appendix III. Description of baseline survey methods

The four methods that were used in this baseline survey are follows:

1. Data collection methods

(i) Desk Review

A comprehensive review of the available literature was done to determine the existing statistics on the performance of the broadcasting sector. Data was collected from the performance reports from the Communication Authority of Kenya and from other published sources including those by the ITU. The full list of the documents reviewed is as follows:

- Kenya Communications Regulations, 2001
- ICT Sector policy 2019
- CA Sector Statistics reports
- The Kenya Information and Communications (Broadcasting) Regulations, 2009
- Communications Authority of Kenya (CA) strategic plan, 2018 - 2023
- National Broadband Strategy 2018 – 2023
- Kenya National ICT Master plan, 2019
- International Telecommunication Union relevant radio communication documents arising from WRC 2019
- African Union Agenda 2063
- SDGs that relate to the Broadcasting sub-sector namely SDG 9 on industry innovation and infrastructure and SDG 4 on quality education including through the use of ICTs.
- Digital Economy Blue print ITU Strategic Plan, 2020-2023
- Other relevant documents including previous studies conducted for the ICT sector in Kenya.

(ii) Questionnaire Survey

A semi structured questionnaire was distributed to 125 broadcasting service providers and 2,015 customers. The closed ended questions were anchored on predetermined five-point Likert scale items to which respondents provided answers which ranged from *Strongly disagree (1) to Strongly agree (5)* and/or from *Strongly dissatisfied (1) to Strongly satisfied* (5) and/or *Most unlikely (1) to Most likely (5).* Proportionate distribution of the consumer sample was done based on population so that the counties with higher population were allocated a higher sample.

Computer Aided Personal Interview (CAPI) using cloud based KOBO toolbox was used (http://www.kobotoolbox.com) for the survey. The KOBO collect program was installed on mobile phones and a digitized form uploaded on a remote server. Furthermore, face to face administration of survey questionnaire and interview with individual broadcast services consumers was done by research assistants while a survey link was sent to service providers which they completed and automatically submitted their responses.

Once the forms were filled, the data was uploaded back to the cloud server where a system administrator downloaded the data for analysis.

(iii) Key Informant Interviews

In-depth interviews were conducted using a predetermined guide with open-ended questions cutting across the factors of the study. The interviews were conducted with representatives from CA, TV and radio Broadcasters (KBC, commercial and community), Broadcast Signal Distributors, Information and Communication Technology Authority (ICTA), Ministry of ICT, National Council for Persona with Disability (NCPWD), Kenya Community Media Network (KCMNET), Independent content producers, Media Council of Kenya (MCK), (See list of KIIs at Annex VI).

(iv) Focus Group Discussion

The focus group discussion questions were based on six themes for the broadcasting sector: (1) PWDs access to services, (2) devices, (3) innovative financing of coverage, (4) technical solutions, and, (5) operational efficiency, and, lastly (6) policy, legal and regulatory enablement (See Annex V).

2. Data Analysis and reporting

Descriptive statistics (frequency counts) and inferential statistics (test of associations between pairs of variables) were done for quantitative data and the results reported in charts, histograms and tables. Further, qualitative data was analysed using content analysis and the findings presented in themes.

Appendix IV: Sampling Frame and Technique

Sampling technique	Description
Stratified Sampling	First, the country was stratified into 47 strata, which is the 47 counties where all the strata were targeted for data collection.
Cluster Sampling	Secondly, the sub-locations in counties/strata were classified into clusters, that is sub-location clusters
Purposive sampling	Given the homogeneity of some of the sub-locations, a sample of sub-locations was purposively selected based on the following criteria: a)Population density, and; b) Geographical coverage (Land area, sq km) These parameters were derived from the 2019 population census. Care was taken to ensure that the selection of sub-locations in each county was representative of the demographics within the particular county. The key informants were selected purposively based on their roles and influence in the broadcasting subsector.
Snowball sampling	Households broadcast services customers were selected using snowball sampling as follows; • *Broadcasting:* The assistant chiefs of each selected sub-location were approached to nominate and provide the contact details of the respondents from the selected sub-location. • **Gender representation:** Optimal gender balance was ensured in the nomination/selection of customers so that the sample comprises adequate representation of men, women, youth and PWDs • The assistant chief was requested to include leaders (youth, women, men) in the sample

The sampling frame for the service providers was the list of operational TV, radio service providers, obtained from the Communications Authority of Kenya (year). Further signal distributers were also studied.

3.4.3 Sample Calculation

A) Licensed Operators

The Communications Authority in carrying out its mandate, licenses and regulates the providers of services in the ICT sector including for broadcasting, services. The survey focussed on the following licensees from the broadcasting sub-sector.

Table 41: Profile of Licensees and their population (include Kenya Broadcasting corporation)

SN	Licensed Operators	POPULATION	TRAGET SAMPLE SIZE
1	Licensed FM Radio Stations	186	106
2	Licensed Digital Terrestrial Television	135	92
4	National Public Broadcaster (KBC)	1	1
	Signal distributors		
	Total Sample of Licensed Operators		**383**

B) Consumers of Broadcasting services

In order to determine a representative sample for consumers of Broadcasting services, the target population was clustered according to the sub-location. A representative sample for each sub-location was then determined using Fisher's Model for sample size calculation for a population of more than 10,000. The sample size was determined by employing the following equation:

Equation 1:

Where:

- **Z** =is the corresponding standard score with a confidence level of 95%, which is 1.96
- **p** = is the occurrence level of the phenomenon under study and is equal to 0.5 where the occurrence level is not known
- **q** = is the absence of the phenomenon under consideration and is equal to 0.5 where the value is not known
- **D** = is the design effect and is equal to the number of groups to be compared in this case
- **e** = is the selected probability of error (error margin) of the study corresponding with 95% confidence level
- **n** = sample size

An error margin of **2.24% at 95%** confidence interval will be used for this survey. This will give a sample size of **2015 respondents** for all the 47 counties. The Sample distribution of Consumers of Broadcasting Services by County is presented in Table 42. The overall sample has been distributed based on proportionate to size of the county population:

Table 42: Distribution of Sample Sub-locations per County

SN	County	Population per County[40]	Proportionate Sampling per County	Target Sub-locations	Sample Sub-locations	adj.
1	Mombasa	1,208,333.00	51	34	2	8
2	Kwale	866,820.00	37	84	4	5
3	Kilifi	1,453,787.00	62	170	8	8
4	Tana River	315,943.00	13	92	4	4
5	Lamu	143,920.00	6	39	2	4
6	Taita/Taveta	340,671.00	14	90	4	4
7	Garissa	841,353.00	36	92	4	4

[40] The population figures are based on KNBS 2019 national census

SN	County	Population per County[40]	Proportionate Sampling per County	Target Sub-locations	Sample Sub-locations	adj.
8	Wajir	781,263.00	33	108	5	4
9	Mandera	867,457.00	37	119	5	4
10	Marsabit	459,785.00	19	114	5	4
11	Isiolo	268,002.00	11	44	2	4
12	Meru	1,545,714.00	65	324	15	9
13	Tharaka-Nithi	393,177.00	17	123	6	6
14	Embu	608,599.00	26	111	5	5
15	Kitui	1,136,187.00	48	316	14	9
16	Machakos	1,421,932.00	60	225	10	9
17	Makueni	987,653.00	42	202	9	9
18	Nyandarua	638,289.00	27	80	4	8
19	Nyeri	759,164.00	32	195	9	8
20	Kirinyaga	610,411.00	26	80	4	5
21	Murang'a	1,056,640.00	45	199	9	8
22	Kiambu	2,417,735.00	102	193	9	8
23	Turkana	926,976.00	39	158	7	7
24	West Pokot	621,241.00	26	198	9	9
25	Samburu	310,327.00	13	108	5	5
26	Trans Nzoia	990,341.00	42	57	3	7
27	Uasin Gishu	1,163,186.00	49	97	4	7
28	Elgeyo/Marakwet	454,480.00	19	180	8	7
29	Nandi	885,711.00	38	289	13	9
30	Baringo	666,763.00	28	270	12	9
31	Laikipia…	518,560.00	22	79	4	7
32	Nakuru	2,162,202.00	92	210	10	9
33	Narok	1,157,873.00	49	185	8	7
34	Kajiado	1,117,840.00	47	143	6	7
35	Kericho	901,777.00	38	158	7	7
36	Bomet	875,689.00	37	223	10	8
37	Kakamega	1,867,579.00	79	186	8	8
38	Vihiga	590,013.00	25	160	7	7
39	Bungoma	1,670,570.00	71	149	7	7
40	Busia	893,681.00	38	181	8	8
41	Siaya	993,183.00	42	179	8	8
42	Kisumu	1,155,574.00	49	168	8	8
43	Homa Bay	1,131,950.00	48	211	10	9
44	Migori	1,116,436.00	47	224	10	9
45	Kisii	1,266,860.00	54	106	5	7
46	Nyamira	605,576.00	26	74	3	5

SN	County	Population per County[40]	Proportionate Sampling per County	Target Sub-locations	Sample Sub-locations	adj.
47	Nairobi City	4,397,073.00	186	112	5	5
	Total	47,564,296.00	**2,015**	**8902**	**323**	**323**

Appendix V: Kenya Broadcasting Corporation -Responsiveness Universal Service Obligation

The Kenya Broadcasting Corporation Act Cap 221 of 1989 establishes the Kenya Broadcasting Corporation to assume the Government functions of producing and broadcasting programmes or parts of programmes by sound or television; to provide for the management, powers, functions and duties of the Corporation; and for connected purposes (see Box 5).

Box 5. Role of Kenya Broadcasting Corporation

Section 4 of the Act establishes the Board of the Corporation which is mandated to perform the functions stipulated under Section 8 of the Act as:

a) provide independent and impartial broadcasting services of information, education and entertainment, in English and Kiswahili and in such other languages as the Corporation may decide;
b) provide, if the Minister so requires, an external broadcasting service for reception in countries outside Kenya and may for that purpose, subject to the acquisition of any requisite license, concessions, rights or privileges, construct or acquire and establish, install, equip and use radio communication stations in countries or places outside Kenya or in space;
c) control and operate such plant, property, installations and services as are, or may be, acquired by the Corporation under this Act;
d) advise the Government on all matters relating to the broadcasting services and to matters appertaining to the Corporation generally;
e) appoint and enter into agreements with such contractors and artistes as may be necessary for the purposes of this Act;
f) conduct the broadcasting services with impartial attention to the interests and susceptibilities of the different communities in Kenya;
g) ensure the observation of standards of broadcasting and commercial advertising;
h) provide facilities for commercial advertising and for the production of commercial programmes at such fee or levy as the Corporation may determine;
i) include in its sound and television programmes a daily service of news, which shall be broadcast in English and Kiswahili and such other languages as the Corporation may decide at such times as the Corporation may determine;
j) keep a fair balance in all respects in the allocation of broadcasting hours as between different political viewpoints;
k) in consultation with the Electoral Commission, during the campaign period preceding any presidential, parliamentary or local government election, allocate free air time to registered political parties participating in the election to expound their policies.

3.6.1 KBC Coverage

According to this survey, SIGNET has 38 active transmitting sites for Digital Terrestrial Television (DTT), which provides 61% population coverage. SIGNET has plans to develop 4 new DTT sites and their projected coverage will be 98% of the population.

3.6.2 KBC Programming

The programmes aired by KBC include entertainment, news and information, Televangelism, Kids programmes, sports and education programmes. These programmes are aired at different times of the day.

Service to PWDs. KBC has sign language interpreters during news and a dedicated station – Sign TV for PWDs.

Local content. This is perceived as expensive (costing KES 600,000 to 800,000 per episode). To promote development of local content, KBC has come up with 'studio Mashinani' strategy. The current operational studios are located in Kitui, Gatanga, Mombasa, Kisumu, Nairobi (CBD) and Komarock on Kagundo at the former KBC SW station. The studios provide free local content development services with primary target beneficiaries being the youth. The studios mainly serve established content producers, plans to mentor new local talents to mainstream local content production are in place. The broadcasters have editorial guidelines for their content to ensure that the rights of persons are protected.

The studio Mashanani model is adopted with the existing DTT and FM radio in the short-term. The sites recommended for transmitter stations are according to the GE06 plans which means they futuristic form a coverage point of view. In addition, it recommended to have integrated TV and Radio stations instead of stand alone TV and radio transmitter station and studio. It is also recommended that digital audio broadcasting be adopted in addition to the FM radio since the future trends in audio broadcasting is the future.

Customer service. There is a toll free line for consumers to lodge complaints or suggestions, to which they respond.

Innovations. KBC plans to introduce new programming features for online radio by installing cameras in radio studios so that those who listen online will also able to see the video of the presenters and interact with them.

3.6.3 Challenges faced by KBC

The following are the challenges that KBC faces:

i) *Expensive local content*: Local content costs between KES 600,000 to 800,000 per episode hence the need for seed funding to promote local content production by developing expertise and enhancing local talent and quality of local content production. (TV episode: Pre-production: KES 60,000; Production: KES 420,000; Post-production: KES 60,000; Marketing: KES 60,000; Radio episode: Pre-production: KES 15,000; Production: KES 105,000; Post-production: KES 15,000; Marketing: KES 15,000)

ii) *Inadequate infrastructure*: infrastructure gaps exist with regard to Universal broadcasting service coverage in Kenya. An estimated KES 4 billion is needed to achieve full FM radio roll out within Kenya.

iii) *Budgetary constraints:* Though KBC's approved budget is KES 5.8 billion, it is only able to finance at most KES 2 billion. It has 1000+ employees and an

obligation to ensure universal coverage but with limited finances. The annual operational expenses amount to KES 1.8 billion.

iv) *Inadequate frequency*: expanding the coverage of FM radio in local languages in major urban centres especially Nairobi is a challenge due to lack of FM frequencies

3.6.4 Existing Partnership

Some of the partnerships that KBC has to extend its services are with:

- Churches to produce local content especially on Saturdays and Sundays
- the youth through the Studio Mashinani project e.g., Genge youth music programme
- Kenya News Agency for local news
- Ministry of education for educational programmes
- Other broadcasters in sharing of local content.

3.6.5 Projects

The following are the projects that KBC is implementing to increase the coverage access and content creation.

- Studio Mashinani, is one of KBC projects to build studios in all 47 counties to enable affordable access to recording capabilities
- Expansion of Signet distribution platform to ensure services are available across all parts of the country and are able accommodate over 80 channels
- KBC implemented in 2019 10 new transmitting stations (*Kitui, Lamu, Kwale, Kilifi, Nyahururu, Maralal, Wajir, Webuye, Siaya and Hola)* at a cost of 100 million each with the support of the government of Spain
- TV coverage expansion - KBC received frequency from CA hence are able to broadcast more DTT channels.
- *Quality of service* - Improving quality of signal in DTT coverage areas, by introducing low power DTT transmitters to fill the gaps (*Kakamega area, Homa Bay area, Migori area*).
- Expansion of local language radio FM stations to cover the whole geographical area of that language area e.g., the Masai language broadcast was originally only available in Narok area, now KBC has installed a transmitter in Kajiado.
- *Online presence* - KBC is also expanding its broadcast to online radio e.g., 10 KBC radio broadcast services can be streamed online, and they are planning to put more online.
- *Branding* - KBC is revamping and re-branding its products and services specifically; English Service Radio, Kiswahili Service Radio, KBC Logo redesign and redesigning its website.

3.6.7 Recommendation

i) USF incentive be provided to all broadcasters providing “public services”

ii) Realignment of content offering by broadcasters to ensure that it is in line with the realities and needs of the marketplace.

iii) Adopt more innovative means of delivery of audio broadcast should be explored including through digital audio broadcasting.
iv) Support public and private to achieve universal broadcasting objectives

Appendix VI. Constitutional Provision for PWDs

Box 6. Constitution and Convention on PWDs

By virtue of Article 2(6) of the Constitution, the government is enjoined under the Convention on The Rights of Persons with Disabilities, 2006 to, among others; take appropriate measures to ensure to persons with disabilities have access, on an equal basis with others, to the physical environment, to transportation, to information and communications, including information and communications technologies and systems, and to other facilities and services open or provided to the public, both in urban and in rural areas. These measures, which shall include the identification and elimination of obstacles and barriers to accessibility, shall apply, *inter alia*, to Information, communications and other services, including electronic services and emergency services.[41]

These measures shall include those to[42]:

- develop, promulgate and monitor the implementation of minimum standards and guidelines for the accessibility of facilities and services open or provided to the public.
- To provide training for stakeholders on accessibility issues facing persons with disabilities.
- To promote access for persons with disabilities to new information and communications technologies and systems, including the Internet;
- To promote the design, development, production and distribution of accessible information and communications technologies and systems at an early stage, so that these technologies and systems become accessible at minimum cost.

Under the National Council for Persons with Disabilities (NCPWD) Strategic Plan 2018 – 2022[43], the following policy priorities were identified to drive the strategic vision of a barrier-free society for Persons with Disabilities under the mission: *To promote and protect equalization of opportunities and realization of human rights for PWDs to live decent livelihoods.* This is to be realised through:

e) Data and statistics
f) Empowerment of PWDs
g) Disability mainstreaming
h) Institutional capacity.

Appendix VII. Collaborative Regulation

Best practice Guidelines for collaborative regulation are presented in Box 9.

[41] Article (9)(1)(b)
[42] Article (9)(2)(a, c, d & e)
[43] http://ncpwd.go.ke/images/NCPWD-2018-2022-Strategic-plan.pdf

Box 7. Best Practice Regulation

In the Global Symposium for Regulators (GSR) 2019 Best Practice Guidelines, [44] it is acknowledged that to improve digital market outcome, the following form the core of collaborative regulation best practice:

a. Space for digital experimentation ranging temporary licences to new technologies' pilots to regulatory sandboxes.
b. Pro-competition frameworks for the digital transformation.
c. Regulatory incentives.
d. Stakeholder engagement vehicles, such as public hearings, high-level roundtables and expert workshops, hackathons, including for pooling resources and expertise to inform regulatory decisions.
e. Robust and enforceable mechanisms for consumer protection including data protection, privacy and data portability and accessible mechanisms for consumer redress.
f. Market-based and dynamic mechanisms for spectrum management for flexible, simplified and transparent use of scarce radio frequencies, and technology neutrality.
g. Regulatory Impact Assessment (RIA) based on benchmarks and data analysis for better decision making.
h. Agile data-driven monitoring solutions, based on standards for the interoperability of data systems and tools among regulators and market players, can facilitate market oversight in areas such as quality of service and experience, and regulatory compliance.
i. Diversified mechanisms for consumer engagement and feedback.
j. Effective channels for dynamic collaboration among regulatory authorities, such as the ICT, financial and competition authorities as well law enforcement agencies and the judiciary to ensure coherent and reasonable regulations across economic sectors.
k. Regional and international cooperation in defining regulatory rules on cross-border issues can ensure consistency, predictability and fluidity of digital markets and will catalyze the deployment of region-wide and global digital infrastructure.
l. Regulatory expertise needs to be developed continuously to integrate new technologies, competencies and skills and allow for data and evidence-based decision-making.

Source: GSR19BestPracticeGuidelines_E.pdf (itu.int)

Appendix VIII. Example of Broadcasting Regulation in Nigeria

Nigeria is one of the leading countries in local content production with global viewership, such as the Nollywood and lessons can be drawn from this country to develop the local content in Kenya. Table 43. Shows and exposition of the regulations with regard to content.

Table 43: Content Regulation in Nigeria

Item	Nigeria[45]
Online	All operate web/online broadcasting services operators must register with

[44] GSR19BestPracticeGuidelines_E.pdf (itu.int)
[45] https://www.mondaq.com/nigeria/broadcasting-film-tv-radio/954936/regulating-nigerian-content-on-broadcasting-platforms-an-examination-of-the-amendments-to-the-6th-edition-of-the-nigeria-broadcasting-code

Broadcasting	the National Broadcasting Commission and conform to the provisions of the NBC Code on programming standards. a service provider who breaches any provision of the NBC Code on web/online broadcasting will be liable to sanctions including but not limited to a takedown order, blocking of its channel, or a shutdown order
Definition of local content	The Code mandates broadcasters to ensure that their conceptualisation, production and target audience satisfies certain conditions as: that the director(s) and author(s) of the programmes should be Nigerian(s)
Acquisition of sports rights	To ensure fair and effective competition on all platforms at an agreed fee, rights owners to live foreign sporting events are mandatorily required to offer the rights to broadcasters on (i) Satellite DTH; (ii) Multipoint Microwave Distribution System (MMDS); (iii) Cable (Fibre Optics; (iv) DTT (Terrestrial); (v) Internet; (vi) Mobile; (vii) Internet Protocol Television (IPTV); and (viii) Radio
Prohibition of exclusive licensing	Broadcasters or licensees are prohibited from entering into any form of agreement, concerted practices or taking any decision intended to prevent competition in the broadcasting industry. Broadcasters or licensees are also expressly prohibited from acquiring any broadcasting rights in such a manner as to exclude persons, broadcasters or licensees in Nigeria from sub-licensing same.
Access for Pay TV platforms	To ensure maximum distribution and viewership of content considered critical to the sustainability of new entrants in the Pay TV industry in Nigeria, the NBC Code as amended mandates broadcasters to ensure access by all Pay TV platforms to premium content in the sports and news genre

It has been observed that the prohibition of exclusive licensing under these regulations conflict with the provisions of the Nigerian Copyright Act on the exclusive right of the owner of a copyright in a broadcast to control the broadcast, sale or licensing of such work where the Commission compels a broadcaster to license its broadcasting rights to another broadcaster where certain circumstances exist.

10. ANNEXES

Annex I: Kick off meeting minutes


MINUTES OF THE VIRTUAL MEETING OF


Kick of Meeting Presentation CA ek_TS

Annex II: Key Informant Interview Guide


KII Guide Broadcasting.docx


KII Guide for postal nd courier.doc


KII guide CA.docx

Annex III: Survey Questionnaires


Broadcasting Licencees_Questionna


Financial Modelling Datasheets Postal_Bro


Consumers_Questionnaire.docx


PCK_Questionnaire.doc


Regulator Questionnaire.docx


Courier Licencees_Questionna

Annex IV: FGD Questions Tool


FGD_PBroadcasting.doc


FGD_Postal and Courier.doc

Annex V: List of Key Informant Interview participants

Name	Contact details
1. Broadcasters	
Royal Media Broadcasting Division (radio citizen and Citizen TV)	PO Box 7468-00300 Nairobi
Nation Media Broadcasting Division (Nation Radio and TV)	PO BOX 49010-00100 Nairobi
Kenya Broadcasting Corporation (KBC Channel One and Radio Taifa)	P.O Box 30456 – 00100 Nairobi
Pamoja Development Centre (Pamoja Radio)	P.O Box 60525-00200 Nairobi
Riverside Ministry (Riverside TV)	P.O Box 53899 - 00200 Nairobi

The Standard Group Broadcasting Division (Radio Maisha)	P.O. Box 30080-00101 Nairobi
Signet Limited (Signal distributor)	P.O. Box 30456- 00100 Nairobi
Pan Africa Network Group (Kenya) Co. Ltd	P.O. Box 29538 00100 Nairobi
GOTV Kenya LTD	BOX 28348 - 00100 Nairobi
2. Ministries, Departments and Agencies	
Ministry of ICT, Innovation and Youth Affairs	P.O Box 30025-00100, Nairobi Kenya Telephone: (+254) 020 4920000 / 1
Communications Authority (CA)	P.O Box: 14448-00800, Nairobi
ICT Authority (ICTA)	P.O. Box 27150 - 00100, Nairobi, Kenya
National Council for Persons with Disabilities (NCPWD)	P.O Box 66577-00800, Nairobi
Media Council of Kenya (MCK)	P.O. Box 43132-00100, Nairobi
3. **Associations**	
The Kenya Disability Parliamentary Association (KEDIPA)	
Independent Content Producers Association	
Kenya Community Media Network (KCMNET)	P.O. Box 2641 – 00100, Nairobi.

Annex VI: List of Service Providers Surveyed

Name	License Type	Station ID	Contact details
Lubao Frequency Modulation Limited	Commercial FM Radio	102.2 Lubao FM	P. O Box 17-50118, Kakamega
Akili Partners Limited	Commercial FTA TV	Akili Kids	P. O Box 41667-00100, Nairobi
Noor Al - Huda ltd	Commercial FTA TV	AL Huda Tv	P. O Box 17955-00500, Nairobi
Angaaf Radio Limited	Commercial FM Radio	Angaaf Radio	P. O Box 3482-00200, Nairobi
Athiani Holdings Limited	Commercial FM Radio	Athiani FM	P. O Box 15357-00509, Nairobi
Mwangaza Advertizer Limited	Commercial FTA TV	Baite TV	P. O Box 3269 Nairobi
Bibilia Husema Broadcasting	Commercial FTA TV	Bibilia Husema	P. O Box 45019-00100, Nairobi
Biblia Husema Broadcasting	Commercial FM Radio	Broadcasting (BHB)	P. O Box 45019-00100, Nairobi
Bus Radio Media Services	Commercial FM Radio	Bus Radio	P. O Box 208-01100, Kajiado
Pacho Community Based Organisation	Community FM Radio	Community based organisation	P. O Box 4303-00506, Nairobi
Cable Television Network Mombasa ltd	Cable TV	Cable Television Network (CTN)	P. O Box 86005, Mombasa
Design Television Limited	Commercial FTA TV	Design TV	P. O Box 13940-00800, Nairobi

Ekialo Kiona Community Based Organisation	Community FM Radio	Ekialo Kiona (EK) FM	P. O BOX 224-40305, Mbita
Western Television Company Limited	Commercial FTA TV	TV magharibi	P. O Box 1130-50200, Bungoma
United States International University - Africa	Community FM Radio	USIU RADIO	P. O Box 14634-00800, Nairobi
Smart Media Colleges	Commercial FTA TV	Utugi TV	P. O Box 2566-00202, Nairobi
Unjiru Television Network	Commercial FTA TV	Unjiru TV	P. O Box 458-00515, Nairobi
Casamoko Contractors ltd	Commercial FM Radio	Ene FM	P. O Box 27147-00100, Nairobi
Christian Foundation Fellowship Kenya	Commercial FTA TV	Faith TV Kenya	P. O Box 79534-00100, Nairobi
Embu TV Limited	Commercial FTA TV	Uvoro TV	P. O Box 74051-00200, Nairobi
TBN Family Media ltd	Commercial FTA TV	Family Media	P. O Box 2330-00202, Nairobi
Mwanyagetinge Television	Commercial FTA TV	GETINGE TV (GTN)	P. O Box 3258-40200, Kisii
Christ is the Answer Ministries	Commercial FM Radio	Hope FM	P. O Box 42254-00100, Nairobi
Christ is The Answer inistry (citam)	Commercial FTA TV	Hope TV	P. O Box 42254-00100, Nairobi
Tamaz Communications ltd	Commercial FTA TV	Horizon TV	P. O Box 100786-00101, Nairobi
Imani radio and tv ministries	Commercial FTA TV	Imani radio and tv ministries	P. O Box 669-30200, Nairobi
Ekialo Kiona Community Based Organisation	Community FM Radio	Ekialo Kiona radio	P. O Box 224-40305, Nairobi
Homeland Media Group Limited	Commercial FTA TV	Kyeni tvE	P. O Box 12367-00100, Nairobi
Christ's Co-workers Fellowship	Commercial FM Radio	Light and Life 107FM	P. O Box 32818-00600, Nairobi
St. Pauls University	Community FM Radio	Light fm	Private Bag 00217, Limuru
Radio Maria Kenya	Community FM Radio	Radio maria	P. O Box 734-10200, Murang`a
		Radio mashinani	
		RADIO RAMENY 88.3	
Amazing Voice of Victory Ministries	Commercial FTA TV	Voice of victory	P. O Box 4131-40200, Kisii
Rahma Broadcsting Limited	Commercial FM Radio	Radio Rahma	P. O Box 16735-80100, Mombasa
Tentacle Communications Limited	Commercial FTA TV	Lolwe Tv	P. O Box 35332-00100, Nairobi

Clearsol Africa Limited	Commercial FTA TV	MAISHA TV	P. O Box 472-50200, Bungoma
Bonten Media Group	Commercial FTA TV	Meru tv	P. O Box 17987-00500, Nairobi
Comprehensive Business Media Limited	Commercial FTA TV	METROPOL TV	P. O Box 35331--00200, Nairobi
Misoft Limited	Commercial FTA TV	Misoft TV	P. O Box 100682-00101, Nairobi
Dominion CENTRAL Links for Development	Commercial FTA TV	Mwanedu fm 96.1	P. O Box 750-80300 Voi
Truckside Advertising Kenya Limited	Commercial FTA TV	Njata tv/njata fm	P. O Box 1717-00100, Nairobi
Nuru Media Limited	Commercial FTA TV	Nuru tv	P. O Box 56762-00200, Nairobi
Nyota Frequency Modulation (fm) Limited	Commercial FM Radio	Nyota Fm	P. O Box 427, Bungoma
Pendo fm self help group	Community FTA TV	Pendo tv (furaha kwa jamii)	P. O Box 2931-50100, Kakamega
Imani radio & t.v. ministries ltd	Commercial FM Radio	Radio imani	P. O Box 669, Kitale
Africa Gospel Church	Commercial FM Radio	Radio Injili	P. O Box 458-20200, Kericho
Riverside Ministry	Community FTA TV	Riverside TV (RTV	P. O Box 53899-00200, Nairobi
Neno Evangelism Centre	Commercial FTA TV	Sasa tv	P. O Box 43817-00100, Nairobi
Baliti FM	Community FM Radio	Sauti ya Jamii	P. O Box 503-60300, Isiolo
Radio Maria Kenya	Community FM Radio	Radio maria	P. O Box 734-10200, Murang`a
Sauti Ya Pwani Fm Limited	Commercial FM Radio	Sauti Ya Pwani Fm	P. O Box 197378-80112, Mombasa
Signs Media Limited	Commercial FTA TV	Signs TV	P. O Box 29500-00100, Nairobi
		Radio sunset	
Christ's Co-workers Fellowship	Commercial FTA TV	REVIVAL TIME	P. O Box 32818-00600, Nairobi
Tv Africa Kenya Holdings Limited	Commercial FM Radio/ Commercial FTA TV	Meru TV and FM	

Annex VII: Financial Modelling Datasheets

Datasheet-Postal and Courier.xlsx

Datasheet-TV.xlsx

Datasheet-Radio.xlsx

Annex VIII: Sub-location List (Sampled list)

Sub-location sampled.xlsx

Household Data CA Baseline.xlsx

Annex IX: Excerpt of KBC Act No 1 of 2009

Subject to this Act and for the purposes of subsection (1), the Corporation shall have power to undertake all such activities as may appear to the Corporation to be requisite, advantageous or convenient for it to carry on, for or in connection with the discharge of its duties, and in particular and without prejudice to the generality of the foregoing shall have power:

a) to produce, manufacture, purchase or otherwise acquire, and sell or otherwise dispose of, films, gramophone and other mechanical records, tapes, wires, perforated rolls or other contrivances by means of which any words, visual images or ideas may be mechanically or electronically produced, reproduced, represented or conveyed and materials and apparatus for use in connection with the broadcasting services;
b) to provide to and receive from other persons material to be broadcast;
c) to organize, provide and subsidize public entertainment for broadcast or for any connected purpose;
d) to collect news and information in or from any part of the world and in any manner that may be thought fit and to establish and subscribe to news agencies;
e) to establish offices and agencies in Kenya and elsewhere;
f) to acquire by registration, purchase or otherwise copyrights in any matter and any trade-marks and trade names and sell copyright or use, exercise, develop and grant licenses in furtherance of the powers, duties and functions of the Corporation;
g) to complete, publish, print and distribute, with or without charge, matter that may be conducive to the performance of any of the duties of the Corporation, or to enter into contract with any person for that purpose;
h) to do anything for the purpose of advancing the skill of persons employed or to be employed by the Corporation, or the efficiency of the equipment of the Corporation or the manner in which the equipment is operated, including the provision by the Corporation, and the assistance of the provision by others, of facilities for training, education and research;
i) to accept for broadcasting, with or without charge, advertisements and announcements which do not conflict with the general policy of the Corporation;

j) to make available to broadcasting organizations the use of its sound and television studios upon such terms as the Corporation may determine for the purpose of preparing programmes for broadcasting;
k) to carry on or operate such services, including wired distribution services, as are conducive to the exercise of its duties;
l) to apply for and obtain, purchase or otherwise acquire and turn to account in any fitting manner any letters patent or patent rights or any interest in letters patent, patent rights, *brevets d'invention*, licences, concessions and the like conferring any right to use secret or other information concerning any invention useful to the purposes and functions of the Corporation;
m) to establish and support or aid in the establishment or support of associations, institutions, funds, trusts and amenities for the benefit of employees or former employees of the Corporation or their dependants or relatives, and to grant pensions and allowances, to make payments towards insurances and to subscribe or guarantee money for charitable or benevolent objects or for any exhibition or for any public, general or useful project;
n) with the approval of the Minister, to establish companies whose objects include any of the Corporation's powers, functions or duties whose business is capable of being carried on in such a way as to facilitate or advance those powers, functions or duties, and to purchase or otherwise acquire stocks, shares or securities of, and subsidize and assist, the companies;
o) subject to section 39, to borrow or raise or secure the payment of money in Kenya or elsewhere.

Annex X: Signal Distribution by BSD

Table 44: List of Broadcast Service Providers

Provider	Site_Name	Site_Location	Longitude	Lattitude	Altitude	Frequency	Power_Ratting	Carrier_Power	Antenna_Gain	Gain_Factor	ERP	Antenna_Height
ADN	NAIROBI	LIMURU (RMS)	36.66394	-1.09922	2313	578	2.4	1.5	13.7	23.44229	35,163.43	132
ADN	MACHAKOS	KISEKINE	37.26611	-1.43647	2075	578	1.2	0.8	11.48	14.06048	11,248.38	81
ADN	KILIMAMBOGO	KILIMAMBOGO	37.25737	-1.14079	2240	578	2.4	1.5	11.48	14.06048	21,090.71	32
ADN	MERU	NYAMBENE	37.876	-0.23469	2505	522	2.4	1.5	11.7	14.79108	22,186.63	81
ADN	NYERI	NYERI HILL	36.90431	-0.411	2208	674	1	0.8	11.48	14.06048	11,248.38	81
ADN	EMBU	KARUE	37.53972	-0.46117	1594	674	0.6	0.4	11.48	14.06048	5,624.19	36
ADN	MURANGA	GATARE	36.89726	-0.83774	1945	674	1.2	0.8	11.48	14.06048	11,248.38	90
ADN	NANYUKI	NANYUKI	37.10036	-0.03061	1995	570	1.2	0.8	11.48	14.06048	11,248.38	72
ADN	NYAHURURU	MAILI 4	36.41172	0.022275	2380	514	0.6	0.4	11.48	14.06048	5,624.19	72
ADN	NYAHURURU	NYANDUNDO	36.23625	-0.12275	2882	514	1.2	0.8	11.48	14.06048	11,248.38	75
ADN	LONDIANI	LONDIANI	35.72822	-0.11206	3017	490	0.6	0.4	11.48	14.06048	5,624.19	90
ADN	NAKURU	MENENGAI	36.08922	-0.255	2186	626	0.6	0.4	13.32	21.4783	8,591.32	72
ADN	KITUI	KITUI	38.02272	-1.35606	1142	602	1.2	0.8	11.48	14.06048	11,248.38	66
ADN	KITUI	MWINGI	37.98231	-0.96861	1188	602	0.6	0.4	11.48	14.06048	5,624.19	72
ADN	KIBWEZI	MBUI NZAU	37.91222	-2.37261	1231	514	1.2	0.8	11.48	14.06048	11,248.38	51
ADN	MIGORI	MIGORI	34.46722	-1.04719	1508	650	0.6	0.4	11.48	14.06048	5,624.19	75

ADN	KISII	NYANGURU	34.79372	-0.71258	1993	626	1.2	0.8	11.48	14.06048	11,248.38	90
ADN	SOTIK	NCHORO HILL	35.0175	-0.675	2184	626	0.6	0.4	11.48	14.06048	5,624.19	72
ADN	KISUMU (NMG)	KIBOSWA	34.74483	-0.02675	1543	474	2.4	1.5	13.32	21.4783	32,217.46	76
ADN	SIAYA	SIAYA	34.29078	0.056111	1322	474	1.2	0.8	11.48	14.06048	11,248.38	72
ADN	HOMABAY	HOMABAY	34.458	-0.54047	1215	474	1.2	0.8	11.48	14.06048	11,248.38	72
ADN	WEBUYE	CHITAMBE HILL	34.77422	0.613833	1140	482	2.4	1.5	14.2	26.30268	39,454.02	48
ADN	BUSIA	KORINDA	34.15222	0.437361	1219	482	1.2	0.8	11.48	14.06048	11,248.38	72
ADN	KAPENGURIA	KAPKORIS	35.10936	1.295167	2338	610	1.2	0.8	11.48	14.06048	11,248.38	72
ADN	MALINDI	MAMBRUI	40.14531	-3.11983	31	650	1.2	0.8	11.48	14.06048	11,248.38	66
ADN	ELDORET	ELDORET (Airstrip)	35.27756	0.530028	2149	554	2.4	1.5	11.48	14.06048	21,090.71	66
ADN	MOMBASA	MAZERAS	39.55633	-3.96869	210	626	2.4	1.5	13.32	21.4783	32,217.46	90
ADN	KILIFI	KILIFI	39.87575	-3.62203	22	626	1.2	0.8	11.48	14.06048	11,248.38	72
ADN	VOI	VURIA	38.29236	-3.41525	2180	642	0.6	0.4	11.48	14.06048	5,624.19	48
ADN	NAROK	NAROK (Motonyi)	35.86833	-1.04156	2100	474	0.6	0.4	11.48	14.06048	5,624.19	81
ADN	GARISSA	MADOGO	39.59592	-0.473	177	594	1.2	0.8	11.48	14.06048	11,248.38	81
SIGNET	NAIROBI	LIMURU	36.6413	-1.15083	2283	602	5000	4100	10.01	10.02305	41,094.52	120
SIGNET	NAIROBI	LIMURU	36.6413	-1.15083	2283	514	5000	3600	10.01	10.02305	36,082.99	120
SIGNET	ELDORET	ELDORET	35.32166	0.505368	2166	538	5000	2000	7.2	5.248075	10,496.15	100
SIGNET	NAKURU	NAKURU (MENENGAI)	36.085	0.24944	2097	634	1800	800	7.2	5.248075	4,198.46	120
SIGNET	NYAHURURU	NYANDUNDO	36.23596	-0.12329	2069	634	2300	2000	10.01	10.02305	20,046.11	70

SIGNET	KERICHO	LONDIANI	35.74139	0.090278	2159	482	500	500	7.2	5.248075	2,624.04	60
SIGNET	NAIVASHA	NAIVASHA	36.55405	-0.86113	2749	634	2300	2000	7.2	5.248075	10,496.15	95
SIGNET	NAROK	NAROK	35.868	-1.04121	2065	642	2300	2000	7.2	5.248075	10,496.15	60
SIGNET	KITUI	KITUI	38.03234	-1.27635	1502.8	626	2300	2000	10.01	10.02305	20,046.11	70
SIGNET	MURANGA	MURANGA	37.13715	-0.83375	1385	498	2300	2000	7.2	5.248075	10,496.15	95
SIGNET	EMBU	EMBU	37.5023	-0.48832	1535	498	2300	2000	7.2	5.248075	10,496.15	95
SIGNET	NYERI	NYERI	36.90388	-0.41061	2215	498	5000	1600	7.2	5.248075	8,396.92	120
SIGNET	NYAMBENE	NYAMBENE	37.87582	0.233568	2232	474	5000	1400	7.2	5.248075	7,347.30	120
SIGNET	Kisii-Nyanguru	Kisii-Nyanguru	34.78969	-0.71283	1769	634	3000	1200	7.2	5.248075	6,297.69	80
SIGNET	VURIA	VURIA	38.305	-3.40694	2176	474	5000	1200	7.2	5.248075	6,297.69	120
SIGNET	GARISSA	GARISSA	39.535	-0.46722	63	634	1300	1300	0	1	1,300.00	100
SIGNET	WAJIR	WAJIR	40.10083	1.84833	2166	538	2300	2000	10.01	10.02305	20,046.11	70
SIGNET	MARSABIT	MARSABIT	37.99313	2.33188	1310	498	200	200	7.2	5.248075	1,049.62	50
SIGNET	YALA	YALA	34.49843	0.103365	1434	634	5000	100	0	1	100	70
SIGNET	WEBUYE	WEBUYE	34.77611	0.600278	2473	618	2300	2000	10.01	10.02305	20,046.11	70
SIGNET	HOMABAY	HOMABAY	34.31913	-0.09963	0	618	200	200	0	1	200	70
SIGNET	MIGORI	MIGORI	34.44611	-0.96778	0	554	800	800	0	1	800	70
SIGNET	KAKAMEGA	LUKUME	34.75566	0.39064	0	562	200	200	0	1	200	70
SIGNET	KERICHO	KERICHO	35.31806	-0.32694	0	634	2000	2000	0	1	2,000.00	70

SIGNET	NAMANGA	NAMANGA	36.7966	-2.5511	1352	538	200	150	0	1	150	50
SIGNET	MACHAKOS	MUA HILL	37.2275	-1.42889	2065	514	2300	2000	0	1	2,000.00	60
SIGNET	MARARAL	MARARAL	36.73361	1.1525	2069	538	2300	2000	10.01	10.02305	20,046.11	70
SIGNET	KIBWEZI	KIBWEZI	37.91235	-2.37221	1193	474	1000	285	7.2	5.248075	1,495.70	120
SIGNET	KWALE	KWALE	39.40056	-4.24028	14	490	2300	2000	10.01	10.02305	20,046.11	70
SIGNET	KILIFI	KILIFI	39.688	-3.6992	14	498	2300	2000	10.01	10.02305	20,046.11	70
SIGNET	SIAYA	BONDO	34.33472	-0.08389	2166	674	2300	2000	10.01	10.02305	20,046.11	70
SIGNET	HOLA	HOLA	39.96	-1.48361	57	626	2300	2000	10.01	10.02305	20,046.11	70
SIGNET	MAZERAS	MAZERAS	39.57361	-3.95889	122	482	5000	1000	7.2	5.248075	5,248.08	120
SIGNET	MALINDI	MALINDI	40.13028	-3.11083	34	634	500	150	7.2	5.248075	787.211	110
SIGNET	LAMU (Mainland)Mpeketoni	LAMU (Mainland)Mpeketoni	40.5875	-2.27333	14	482	2300	2300	10.01	10.02305	23,053.02	70
SIGNET	KISUMU	KISUMU)	34.75778	-0.1145	1769	618	3700	1400	7.2	5.248075	7,347.30	75
SIGNET	LOKICHOGGIO	TURKANA	34.3681	4.20951	0	498	250	100	7.2	5.248075	524.807	40
SIGNET	LOWDAR	TURKANA	35.60665	3.112414	0	498	250	90	7.2	5.248075	472.327	45
GOTV	Eldoret	Sayare	35.32156	0.505221	2208	498	1800	1700	11.1	12.8825	21,900.24	95
GOTV	Eldoret	Sayare	35.32156	0.505221	2208	666	1800	1700	11.4	13.80384	23,466.53	95
GOTV	Embu	Kithimu	37.5028	-0.4885	1534	546	2300	2300	11.3	13.48963	31,026.15	95
GOTV	Embu	Kithimu	37.5028	-0.4885	1534	634	2300	2300	11.4	13.80384	31,748.84	95
GOTV	Garissa	KBC	39.53872	-0.52198	241	682	1800	1800	12.9	19.49845	35,097.20	95

GOTV	Garissa	KBC	39.53872	-0.52198	241	690	1800	1800	12.9	19.49845	35,097.20	95
GOTV	Homa Bay	Kanyamfwa	34.53393	-0.38883	1310	498	2300	2300	11.3	13.48963	31,026.15	95
GOTV	Homa Bay	Kanyamfwa	34.53393	-0.38883	1310	618	2300	2300	11.7	14.79108	34,019.49	95
GOTV	Kakamega	Lukume	34.75578	0.390624	1575	642	2300	2300	11.5	14.12538	32,488.36	95
GOTV	Kakamega	Lukume	34.75578	0.390624	1575	650	2300	2300	11.5	14.12538	32,488.36	95
GOTV	Kapenguria	Kitale KBC	35.11027	1.293276	2316	634	2300	2300	11.2	13.18257	30,319.91	95
GOTV	Kapenguria	Kitale KBC	35.11027	1.293276	2316	666	2300	2300	11.2	13.18257	30,319.91	95
GOTV	Kericho	Ngorangai	35.31075	-0.32956	2097	498	2300	2300	10.9	12.30269	28,296.18	95
GOTV	Kericho	Ngorangai	35.31075	-0.32956	2097	618	2300	2300	11.3	13.48963	31,026.15	95
GOTV	Kisii	Kisii KBC	34.78959	-0.71284	1997	498	2300	2300	11.3	13.48963	31,026.15	95
GOTV	Kisii	Kisii KBC	34.78959	-0.71284	1997	618	2300	2300	11.8	15.13561	34,811.91	95
GOTV	Kisumu	Kiboswa	34.74133	-0.02797	1541	498	1800	1700	11.1	12.8825	21,900.24	95
GOTV	Kisumu	Kiboswa	34.74133	-0.02797	1541	618	1800	1700	11.5	14.12538	24,013.14	95
GOTV	Malindi	KBC	40.10945	-3.10164	41	658	1800	1700	12.7	18.62087	31,655.48	95
GOTV	Malindi	KBC	40.10945	-3.10164	41	682	1800	1700	12.6	18.19701	30,934.92	95
GOTV	Meru	Nyambene KBC	37.87651	0.233731	2504	490	2300	2300	10.7	11.74898	27,022.64	95
GOTV	Meru	Nyambene KBC	37.87651	0.233731	2504	578	2300	2300	11.1	12.8825	29,629.74	95
GOTV	Mombasa	Mazeras	39.54394	-3.96894	185	506	6000	6000	10.4	10.96478	65,788.69	125
GOTV	Mombasa	Mazeras	39.54394	-3.96894	185	514	6000	6000	10.3	10.71519	64,291.16	125

GOTV	Mombasa	Nyali	39.69389	-4.03081	20	506	2300	2300	12	15.84893	36,452.54	95
GOTV	Mombasa	Nyali	39.69389	-4.03081	20	514	2300	2300	12	15.84893	36,452.54	95
GOTV	Migori	Ombo Hills	34.4657	-1.04463	1489	578	1800	1700	12	15.84893	26,943.18	54
GOTV	Migori	Ombo Hills	34.4657	-1.04463	1489	562	1800	1700	11.7	14.79108	25,144.84	54
GOTV	Muranga	Kaharate	37.13715	-0.83375	1384	546	2300	2300	11.4	13.80384	31,748.84	95
GOTV	Muranga	Kaharate	37.13715	-0.83375	1384	634	2300	2300	11.5	14.12538	32,488.36	95
GOTV	Nairobi	KCB	36.81302	-1.30212	1716	554	2300	2300	7.5	5.623413	12,933.85	108
GOTV	Nairobi	KCB	36.81302	-1.30212	1716	538	2300	2300	7.6	5.754399	13,235.12	108
GOTV	Nairobi	Langata	36.74722	-1.35639	1816	554	2300	2300	11.9	15.48817	35,622.78	40
GOTV	Nairobi	Langata	36.74722	-1.35639	1816	538	2300	2300	12	15.84893	36,452.54	40
GOTV	Nairobi	Limuru	36.64109	-1.15051	2278	554	6000	6000	12.5	17.78279	##########	125
GOTV	Nairobi	Limuru	36.64109	-1.15051	2278	538	6000	6000	12.5	17.78279	##########	125
GOTV	Nairobi	Mua Hill	37.18929	-1.48116	2067	554	2300	2300	11.3	13.48963	31,026.15	95
GOTV	Nairobi	Mua Hill	37.18929	-1.48116	2067	538	2300	2300	11.4	13.80384	31,748.84	95
GOTV	Naivasha	ViewPoint	36.55378	-0.86072	2749	498	2300	2300	11.1	12.8825	29,629.74	95
GOTV	Naivasha	ViewPoint	36.55378	-0.86072	2749	658	2300	2300	11.4	13.80384	31,748.84	95
GOTV	Nakuru	Bahati Kabatini	36.09218	-0.25474	2152	498	2300	2300	11.2	13.18257	30,319.91	95
GOTV	Nakuru	Bahati Kabatini	36.09218	-0.25474	2152	658	2300	2300	11.6	14.4544	33,245.12	95
GOTV	Narok	Mutonyi Hill	35.8674	-1.04131	2086	634	2300	2300	11.7	14.79108	34,019.49	95

GOTV	Narok	Mutonyi Hill	35.8674	-1.04131	2086	642	2300	2300	11.7	14.79108	34,019.49	95
GOTV	Nyeri	KBC	36.90294	-0.41115	2217	546	2300	2300	11.5	14.12538	32,488.36	95
GOTV	Nyeri	KBC	36.90294	-0.41115	2217	634	2300	2300	11.6	14.4544	33,245.12	95
GOTV	Webuye	KBC	34.77363	0.614841	1674	642	2300	2300	11.2	13.18257	30,319.91	95
GOTV	Webuye	KBC	34.77363	0.614841	1674	650	2300	2300	11.2	13.18257	30,319.91	95
PANG	LIMURU	Chunga Mali	36.65243	-1.15306	2240	556	3900	3378	13.6	13.33	43687.29	95
PANG	NAIROBI	KCB Upperhill	36.81265	-1.302	1712	556	2600	2170	10.35	17.78	38584.07	115
PANG	MOMBASA	Mazeras	39.5558	-3.96813	195	584	2275	1955.5	15	50.39	41267.67	70
PANG	KISUMU	Kiboswa	34.74235	-0.03002	1542	586	3900	3100	15.2	14.51	44983.62	60
PANG	NAKURU	Menengai Hills	36.09194	-0.25417	2165	588.67	2600	2600	10.9	15.33	39853.07	85
PANG	NYERI	Nyeri Hills	36.90467	-0.41105	2202	506	2600	2497.67	12.37	16.5	41212.01	70
PANG	ELDORET	Kapsoya	35.31695	0.501967	2196	559.33	1300	1318.33	10.63	27.84	36703.58	70
PANG	WEBUYE	Chitambe	34.77347	0.615833	1673	562	2600	2600	12.45	14.77	38394.73	70
PANG	KISII	Nyanguru	34.78903	-0.7129	1700	580.67	2600	2400	12.87	17.36	41531.43	48
PANG	MALINDI	Orange House Near Police station	40.11823	-3.21354	150	586	1300	1300	9.04	26.16	34012	80
PANG	MERU	Kinoru	37.6409	0.051167	1708	559.33	1300	1300	8.59	26.61	34599.43	60
PANG	NYAHURURU	Maina Hills	36.36791	0.060808	2432	535.33	1300	1300	10.77	28.29	36776.1	33
PANG	KERICHO	Kepchetoror	35.29695	-0.31403	2169	566	1300	316	11.05	97.84	30916.87	48
PANG	NAROK	Bobong kwa uwanja	35.8832	-1.09553	1827	594	1300	1300	7.5	25.78	33509.43	33

PANG	MACHAKOS	Mua Hills	37.18883	-1.4809	2064	554	200	198	11	145.64	28836.65	65
PANG	KAPENGURIA	Kapkoris	35.1111	1.292303	2314	642	600	586.5	14.7	63.52	37250.59	60
PANG	NAIVASHA	Susana Near Fly over	36.5528	-0.86134	2748	574	600	600	14.35	61.67	37001.51	133
PANG	KITUI	Telkom kenya Near Huduma Center	38.0125	-1.36743	1160	519.33	1300	873.33	9.4	41.37	33503.84	50
PANG	EMBU	Gatunduri	37.48295	-0.48147	1518	602	600	597.5	7.5	50.43	30133.38	64
PANG	GARISSA	Madogo	39.59538	-0.47318	159	527.33	1300	913.33	9.4	39.89	33692.17	100
PANG	MURANGA	St Maries	37.14416	-0.71711	0	670	200	101.1	4.5	192.1	19416.9	30
PANG	MIGORI	Dallas/Bendera Tatu	34.48652	-1.05351	0	670	200	197.5	4.5	113.05	22325.32	30
PANG	NANYUKI	Nanyuki	37.07202	0.002883	0	666	0	0	0	0	7849.53	40

Annex XII: Coverage by sub-location


No Coverage Sublocs.xlsx


DTT Coverage by County (ast at 31ST .


DTT_Coverage_Population.xlsx


FM No Access Pockets.xlsx

Annex XIII. World Economic Forum on Quality of Service Top of the Pile in 2020

Some of the attributes of interest to consumers are[46] which need attention are as follows:

Reliability of the service - such as the consistency of receipt of the broadcast signal. This includes the consistency with which the service is available within the coverage area. There are areas that are covered but have poor signal; this requires the boosting of the signal

Geographical reach - how accessible the broadcasting service is. There are areas and populations that are still not covered by radio and TV hence the need for deployment of transmitter stations, and boosting of signals in the already covered areas

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Relevance and benefits of the service – the extent to which the service or the product meets the customer needs. This includes radio and TV content and programming. In this regard, the suitability of the content and its programming in relation to national development needs improvement.

Effectiveness and efficiency of the service – fitness for use of the timeliness of its provision with important implication for service delivery. There are concerns about the quality of the content; this has implications for improvement in content creation

Security and convenience that the service has; this includes online security (cybersecurity and data protection), including personalization such is the case for advanced TV services. This aspect still needs improvement

Affordability – whether the service pricing is within the economic ability of the population to be served. The price of access devices for the general public and for PWDs is still high.

Community broadcaster

Under the KICA, "community broadcasting services" means a broadcasting service which meets all the following requirements

[46]World Economic Forum on Quality of Service Top of the Pile in 2020.

(a) is fully controlled by a non-profit entity and carried on for non-profitable purposes;
(b) serves a particular community;
(c) encourages members of the community served by it or persons associated with or promoting the interests of such community to participate in the selection and provision of programmes to be broadcast in the course of such broadcasting service; and
(d) may be funded by donations, grants, sponsorships or membership fees, or by any combination of the aforementioned;

Annex XIV Strategies to improve service coverage provision to general public

From the service provider perspective the following are the ways in which broadcasting services in rural and urban areas can be improved in Kenya (Table 45).

Table 45: Improvement of broadcast services to the public in urban and rural areas

Improvement of broadcast services in rural areas	Improvement of broadcast services in urban areas
Government/ regulatory interventions	***Government/ regulatory interventions***
• Digitize radio audio broadcast to enable reach to the underserved areas	• Provide financial support to broadcasters to acquire broadcast equipment and roll out services in unserved areas
• Introduce new license category to cater for niche/ national priority areas such as science research, education, farming etc which are not adequately covered by existing broadcaster categories etc.	• Reduce license fees
• Improve on accessibility of frequency	• Provide tax rebates on broadcasting equipment including for special interest groups
• Substantially reduce licenses fees for small stations for sustainability	**Infrastructure**
• Incentivize broadcasters who provide public service	• Provide more transmitters and studios to increase signal coverage
• Provide tax rebates on broadcasting equipment including for special interest groups	• Promote infrastructure sharing in the sub-sector
• Recognise best performing media houses through annual awards	**Compliance with standards**
Infrastructure	• Monitor and sanction frequency interference
• Promote infrastructure sharing	• Promote professionalism in the sub-sector
• Prioritize free to air services to meet the needs of all people	• Amend copyright laws to have a central point
Content development	**Competition**
• Promote local content production	• Promote effective competition in the sub-sector
Capacity building	• Recognise best performing media houses through annual awards
• Create awareness for the broadcasting sub-sector	**Content development**
	• Promote local content production
Complementary infrastructure	**Capacity building**
• Improve on road network to the transmitter sites especially to hilly sites.	• Create awareness for the broadcasting sub-sector
	Complementary infrastructure
	• Provide adequate and stable power supply

• Improve on power supply especially in the rural areas • Improve Internet access to facilitate online broadcast services	• Improve accessibility of roads • Provide security in insecure areas • Ease the access to information from government offices for broadcasters