



**BENCHMARKING REPORT ON
ELECTRONIC
COMMUNICATIONS
NETWORKS AND FACILITIES
DEPLOYMENT**

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ACRONYMS

ACT	Association of Comms and Technology
ATC	American Tower Company
BBI	Broadband Infraco
BBNL	Bharat Broadband Network Limited
BDUK	Building Digital UK
CEB	Central Electricity Board
CoGTA	Cooperative Governance and Traditional Affairs
DCA	Digital Council Africa
DCDT	Department of Communications and Digital Technologies
DoT	Department of Telecommunications
DSIT	Department for Science, Innovation and Technology
ECA	Electronic Communications Act (No. 36 of 2005)
ECN	Electronic Communications Network
EDB	Economic Development Board
EMC	Electromagnetic Compatibility
EPA	Environmental Protection Agency
FTTH	Fibre-to-the-Home
GAEC	Ghana Atomic Energy Commission
GCAA	Ghana Civil Aviation Authority
GIFEC	Ghana Investment Fund for Electronic Communications
GIS	Geographic Information System

GP	Gram Panchayat (Village Council)
HTG	Helios Towers Ghana
IBA Act	Independent Broadcasting Authority Act
ICASA	Independent Communications Authority of South Africa
ICTA	Information and Communication Technologies Authority
IDA	Infrastructure Development Act (No. 23 of 2014)
IMC	Inter-Ministerial Committee
IP-I	Infrastructure Provider Category-I
ISPA	Internet Service Providers' Association
LPA	Local Planning Authority
MMDA	Metropolitan, Municipal and District Assembly
MT	Mauritius Telecom
NBM	National Broadband Mission
NCA	National Communications Authority
NELS	National Electronic Licensing System
NGIC	Next-Gen Infrastructure Company
NITA	National Information Technology Agency
Ofcom	Office of Communications
OPGW	Optical Ground Wire
OTA	Office of the Telecoms Adjudicator
PBG7	Planned Building Guidelines (Section 7)
PICC	Presidential Infrastructure Coordinating Commission

PM-WANI	Prime Minister Wi-Fi Access Network Interface
RoW	Right of Way
SANRAL	South African National Roads Agency Limited
SA Connect	South Africa Connect (Broadband Policy)
SIP	Strategic Integrated Project
SITA	State Information Technology Agency
SLDC	State Land Development Company
SOE	State-Owned Enterprise
SRN	Shared Rural Network
STLE	Submarine Terminating Line Equipment
TAR	Telecoms Access Review
TDSAT	Telecom Disputes Settlement Appellate Tribunal
TILPA	Telecommunications Infrastructure (Leasehold Property) Act
TRAI	Telecom Regulatory Authority of India
USAF	Universal Service and Access Fund
USOF	Universal Service Obligation Fund
WACS	West Africa Cable System
WAPA	Wireless Access Providers Association

GLOSSARY OF TERMS

Term	Definition
Wayleave	Permission to install infrastructure on/under public or private land.
Dig-Once Policy	Mandate to install shared conduits during roadworks to prevent repeated digging.
Co-Location	Sharing physical infrastructure (e.g., towers) among multiple operators.
Servitude	Legal right to use land for specific purposes (e.g., roads, utilities).
Universal Service Fund	Mechanism to subsidise connectivity in underserved areas (funded by operator levies).
Pole Attachment	Mounting telecom cables on electricity/utility poles.
Right of Way (RoW)	Legal access to deploy infrastructure along roads/properties.
Deemed Approval	Automatic permission if authorities don't respond within a set timeframe.
EMF Exposure	Electromagnetic field levels from telecom equipment.
Backbone Network	Core high-capacity fiber routes connecting regions.
Gigabit-Capable	Infrastructure supporting speeds ≥ 1 Gbps.

EXECUTIVE SUMMARY

This benchmarking report evaluates South Africa's electronic communications network deployment framework against international best practices from India, Ghana, Mauritius, and the United Kingdom. The analysis identifies systemic constraints and proposes regulatory and operational improvements to accelerate broadband infrastructure rollout.

Key Findings: South Africa's Challenges

South Africa's deployment efforts face three primary constraints:

- (1) a fragmented wayleave approval system with inconsistent municipal processes,
- (2) non-binding rapid deployment policies leading to uneven implementation, and
- (3) restricted access to government-owned infrastructure due to prohibitive costs and bureaucratic hurdles.

These challenges result in prolonged timelines and inflated deployment costs.

International Benchmark Insights

Comparative analysis reveals four successful models: India's centralised digital portal (Gati Shakti Sanchar) reduced approval times by 60%; Mauritius achieved universal fiber coverage through mandated infrastructure sharing; the UK's Project Gigabit extended rural connectivity via public-private partnerships; and Ghana implemented efficient co-location policies with strict 90-day permit caps.

Recommendations

The report proposes five priority interventions:

- (1) legislating binding (enforceable timelines, penalties for non-compliance, or mandatory municipal adoption), rapid deployment policies;
- (2) establishing a centralised digital platform for wayleave management;
- (3) mandating cost-based access to state infrastructure;
- (4) expanding ICASA's dispute resolution mandate; and

- (5) restructuring the Universal Service Fund to target rural connectivity gaps.

Report Structure:

Section 1: analyses South Africa's policy framework and stakeholder consultations.

Section 2 examines international case studies through regulatory, institutional, and legislative lenses.

Section 3 presents comparative findings and implementation roadmaps. Supporting annexes contain detailed methodology and data tables.

These evidence-based recommendations would reduce deployment timelines and lower infrastructure costs, positioning South Africa to achieve its digital inclusion targets.

1. BACKGROUND

The Independent Communications Authority of South Africa (“ICASA” or “the Authority”) is in the process of developing regulations in respect of the National Policy¹ and Policy Direction² on Rapid Deployment of Electronic Communications Networks and Facilities (“the Policy Direction”) published in Government Gazette 48346 on 31 March 2023.

The Authority has issued a questionnaire during preliminary engagement with the industry stakeholders. The issues raised by stakeholders in response to the Authority questionnaire that was shared on 19 July 2024 to invite telecommunications industry representative bodies to provide comments regarding the current challenges, regulatory issues, and potential interventions needed to expedite the rapid deployment of electronic communications facilities in South Africa in line with the Policy Direction.

The Authority received the written submissions from Association of Comms and Technology (“ACT”), Digital Council Africa (“DCA”), Wireless Access Providers Association of South Africa (“WAPA”), Internet Service Providers’ Association (“ISPA”), and with South African Communications Forum (“SACF”) post these consultations, participants were requested to submit supplementary information, which was subsequently received from DCA, WAPA, and ISPA. ACT indicated that their submission was consolidated into DCA’s submission, and no supplementary information was received from SACF.

1.1. SUMMARY OF KEY ISSUES IDENTIFIED DURING CONSULTATIONS

Rapid deployment regulations require a holistic governmental approach which includes the Independent Communications Authority of South Africa (“ICASA”), Department of Communications and Digital Technology (“DCDT”), CoGTA, South African Local Government Association (“SALGA”) and other government entities.

- a. Government’s infrastructure projects are not aligned.

¹ https://www.gov.za/sites/default/files/gcis_document/202304/48346gon3236.pdf

² https://www.gov.za/sites/default/files/gcis_document/202304/48346gon3237.pdf

- b. ICASA has no direct control over land/property owners and municipalities: thus, any regulations will have to be a collaborative effort. ICASA has an important role to play through information sharing (e.g. aggregated and anonymised GIS data, municipal scorecards).
- c. The cooperation between DCDT, ICASA, industry and COGTA during COVID-19 demonstrated the best collaborative effort.

The Draft Standard By-Laws for the Deployment of Electronic Communications Facilities³ provides a standard template for municipalities to ensure consistent planning for electronic communications infrastructure. While these by-laws consider municipal competencies, laws, and developmental obligations, their slow adoption creates challenges that will continue until all municipalities adopt them.

- a. Lack of uniform wayleave standards of operation or enforceable guidelines for municipalities - adoption of standard of draft by-laws;
- b. There is no coordinated drive from Cooperative Governance and Traditional Affairs ("CoGTA") to drive adoption of the Draft By-Law;
- c. There is no standard application framework for wayleave access - each municipality has its criteria and procedure (some have neither);
- d. Wayleaves are seen as a 'cash cow' / rent-seeking opportunity by municipalities, which means that wayleave prices are often highly inflated; and
- e. Wayleave turnaround times tend to be unreasonably long.

Access challenges differ depending on whether the land is government-owned or privately owned – facilitating access to government land is a critical enabler.

- a. Access to state-owned infrastructure (e.g. high sites and 'street furniture') and land is problematic - SANRAL and the Civil Aviation Authority ("CAA") have dramatically hiked wayleave fees.
- b. Wayleave squatting (securing of wayleaves by third parties by non-licensees) purely for resale at extortionate prices is a problem.

³ Standard Draft Bylaws for Deployment of Electronic Communications Facilities (GG 48113)

- c. Approval timelines and fees need to be standardised to expedite infrastructure deployment.

The criminal activities of the construction and tower mafias must be decisively addressed by law enforcement agencies.

1.2. ANALYSIS OF THE POLICY

The Council Committee analysed the policy⁴ and identified the following challenges.

Right to deploy broadband infrastructure

Paragraph 4.4 of the policy states that the policy is subject to local government and other legislation, to the extent applicable, noting the need for co-operation between different spheres of government. Paragraph 6.4 of the policy outlines the conditions for accessing land. *The Authority has no objection to paragraph 6.1 of the policy, as it is in line with the provisions of Section 22 of the ECA. This will be considered in the draft regulations.*

Access to government servitudes

Paragraph 6.2 of the policy states:

"Government entities in all spheres of government that have servitudes for infrastructure such as roads, power lines, water pipelines, sanitation pipelines and railway lines, must permit licensees to use such servitudes to deploy broadband infrastructure."

The policy lacks details on implementation. This requires cross-government coordination, which is currently missing, considering this will require intervention from all spheres of government, and some of the entities are outside the district of the Authority.

⁴ National Policy "the Policy" and Policy Direction on Rapid Deployment of Electronic Communications Networks and Facilities ("the Policy Direction") published in Government Gazette 48346 on 31 March 2023

The Authority recommends that the Minister revise the policy to include a cross-government coordination framework for access to government servitudes. The framework must include access fees, processes, and procedures for accessing government servitudes.

Access to government infrastructure

Paragraph 6.3 of the policy states:

"Government entities must share property and infrastructure such as high sites, poles and ducts with licensees for purposes of broadband deployment."

For paragraph 6.3 to be implementable, the Minister must develop a statutory framework for sharing property and infrastructure between Government entities and licensees, like paragraph 6.2. Paragraph 6.3, as currently worded, is not implementable.

Conditions for access to land

Paragraph 6.4 (h) of the policy states that:

"A licensee must submit geographical information system information about the type and location of broadband infrastructure deployed to the Independent Communications Authority of South Africa (the Authority). The Authority must use the geographical information system information to update the geographic information system database of the Rapid Deployment National Coordinating Centre of the Department"

The Authority is engaging the Ministry on paragraph 6.4 (g) to advise on the following:

- Who will be responsible for the administration GIS database for the Rapid Deployment National Coordinating Centre of the Department?
- Details of the GIS database that the Authority must update, including the structure of the database.
- Who will carry the cost of managing and maintaining the GIS database?

Compensation and fees

Paragraph 6.5.5 of the policy states that:

"This policy does not apply to fees charged by local government and other governmental authorities for permits, authorisations, or other approvals. It should, however, be noted that the White Paper provides that any wayleave administration fee or tariff levied by a municipality for a wayleave application contemplated in paragraph 6.4(b) should not exceed the administrative cost of processing the application.

The Authority note paragraph 6.5.5. However, the Authority, in its preliminary consultation, has identified the municipality fees as the impediments towards the rapid deployment of electronic communications and networks. The policy did not attempt to address these impediments.

Dispute Resolution mechanism, appeal, and review

Sub-paragraph 6.6.2 of the policy provides that:

"The following two types of disputes relevant to building of broadband infrastructure may be decided in accordance with the rapid deployment regulations:

- a) Disputes about the manner a licensee exercise or intends to exercise its rights;*
- b) Disputes about compensation.*

*A dispute may, however, only be decided in accordance with the rapid deployment regulations, if the property owner or other affected person contemplated in paragraph 6.4(a) agrees to it in writing. **Therefore, the dispute resolution process is voluntary. In addition, the dispute resolution process does not apply to local government [own emphasis].***

The Authority believes that the property owners are outside the mandate of the ECA. The policy further stated that the dispute resolution process does not apply to local government, and it is voluntary. If the dispute resolution process is implemented in the current format, the regulations will be ineffective.

KEY POLICY CHALLENGES IDENTIFIED AND RECOMMENDATIONS

The Committee has identified the following challenges through preliminary consultations and analysis of the policy:

- a) Effective implementation requires coordination across various levels of government (national, provincial, and local). This can be challenging due to differing priorities, regulations, and jurisdictions.
- b) The policy mandates the use of government servitudes and infrastructure for broadband deployment, but it lacks detailed guidelines on how this will be achieved. This requires a clear statutory framework and cooperation from all government entities.
- c) The policy outlines conditions for accessing land, but the practical implementation of these conditions, especially the use of a GIS database, requires further clarification and detailed planning.
- d) Disputes over compensation and fees can arise, particularly regarding the reasonableness of compensation offered to property owners. However, the Authority does not have jurisdiction over the property owners.
 - The proposed dispute resolution mechanism is voluntary and does not apply to local government. This limits its effectiveness and may result in unresolved disputes that hinder deployment efforts.
 - Implementing the policy requires adequate funding and resources, particularly for managing and maintaining the GIS database and other administrative tasks. The policy does not clearly outline who will bear these costs.
 - Ensuring that all stakeholders, including property owners, government entities, and licensees, are adequately informed and engaged in the process is crucial for smooth implementation. Lack of engagement can lead to resistance and delays.

1.3. BENCHMARKING STUDIES

The Authority, following the preliminary consultation, conducted a benchmarking study visit for four countries (India, Mauritius, the United Kingdom, and Ghana), which were identified for benchmarking by recognising their leading strategies and legislative frameworks in broadband infrastructure deployment.

The study visit was aimed at achieving the following objectives:

- a) Examine regulatory and operational measures adopted by other countries, particularly in:
 - a. Access to private/public property and right-of-way
 - b. Dispute resolution mechanisms for property damages
 - c. Access fees to property and right of way
- b) Assess advancements in infrastructure and technology that enhance broadband deployment efficiency.
- c) Analyse barriers to broadband rollout and successful strategies to overcome them.
- d) Explore potential partnerships and knowledge-sharing initiatives with international counterparts.
- e) Study best practices for broadband infrastructure implementation and coverage mapping.
- f) Investigate funding mechanisms, Universal Service and Access Fund (USAF) management, and organisational financing models.

Amongst others, the benchmarking study also looked at how the following identified countries are dealing with the challenges which were raised by the industry stakeholders. The Authority visited the countries as follows:

- India – The Telecommunications Regulatory Authority of India (TRAI) from 10 - 11 March 2025.
- Mauritius - The Information and Communication Technologies (ICTA) on 14 March 2025.
- United Kingdom – The Ofcom from 08 - 09 May 2025

- Ghana - The Ghana National Communications Authority (NCA) from 28th to 30th May 2025.

2. BENCHMARK VISITS REPORT

2.1. TELECOMMUNICATIONS LANDSCAPE

This section offers an overview of each country's digital infrastructure status, outlining key policies and identifying major stakeholders. This foundational context is essential for the subsequent comparative analysis.

2.1.1. SOUTH AFRICA

South Africa possesses an extensive terrestrial fibre network, with route lengths exceeding 200,000 kilometres.⁵ Despite this significant backbone, the penetration of advanced connectivity services at the household level remains low. Less than 3% of all households have Fibre-to-the-Home (FTTH) connections, and overall home internet access stands at a mere 10% of households. This figure is notably below the 50% average observed in other developing countries, indicating a substantial connectivity gap at the consumer level.⁶ National 5G population coverage has shown growth at 46.64%.⁷

The South African government has introduced several key policies and programs to address these disparities and accelerate digital transformation. SA Connect, approved by the Cabinet in 2013, is a national broadband policy aiming for universal, quality, and affordable broadband connectivity. Its initial phase, implemented in 2017, focused on connecting government facilities. The revised Phase 2, approved in 2022, sets an ambitious target of 100% broadband access for communities and government facilities by 2025/26, with minimum speeds of 5 Mbps for households and 10 Mbps for government facilities. This phase includes the large-scale deployment of 32,055 Wi-Fi hotspots to expand public access.

⁵ SA Connect - DCDT, accessed July 24, 2025, <https://www.dcdt.gov.za/sa-connect-document.html>

⁶ <https://www.prysmian.com/en/insight/telecoms/nexst/bridging-south-africa-s-digital-divide-the-challenges>

⁷ ICASA's report on the state of ICT sector in SA - March 2025

Complementing SA Connect is the National Policy on Rapid Deployment of Electronic Communications Networks and Facilities, issued in March 2023. This policy seeks to reduce "red tape" and accelerate broadband infrastructure development, recognising its vital role in fostering a digital economy and society.⁸

Furthermore, the Digital Transformation Roadmap, launched in May 2025, aims to streamline and integrate public services through a "One Person, One Government, One Touch" system, encompassing initiatives like digital identity, data exchange frameworks, and digital payments to improve citizen interaction with government services.⁹

The "red tape" that the Rapid Deployment Policy explicitly aims to reduce appears to be more entrenched than anticipated. This situation arises because the policy's principles are noted as "not binding" and leave "significant scope for interpretation" by various stakeholders.¹⁰ Consequently, practical barriers such as fragmented municipal processes and a lack of clear compensation guidelines continue to impede progress, despite the stated goals of reducing delays and fostering a digital economy. This suggests that while comprehensive policies are in place, the challenges lie in their consistent and effective execution across multiple governmental and private entities.

2.1.2. INDIA

India's broadband connectivity is experiencing rapid expansion, a trend driven by continuous advancements in technology and significant investments in telecom infrastructure development.¹¹ The nation stands out globally as the largest

⁸ Rapid deployment of broadband infrastructure - Invest Africa, accessed July 24, 2025, <https://www.investafrica.com/insights-and-news/rapid-deployment-of-broadband-infrastructure>

⁹ Minister Solly Malatsi welcomes launch of Roadmap for the Digital Transformation of the South African Government, accessed July 24, 2025, <https://www.gov.za/news/media-statements/minister-solly-malatsi-welcomes-launch-roadmap-digital-transformation-south>

¹⁰ Policy Direction on Rapid Deployment of Electronic Communications Networks and Facilities - South African Government, accessed July 24, 2025, https://www.gov.za/sites/default/files/gcis_document/202304/48346gon3237.pdf

¹¹ NATIONAL BROADBAND MISSION 2.0 2025-30 - Telecom ..., accessed July 24, 2025, https://eservices.dot.gov.in/sites/default/files/user-mannual/NBM%2020%20Vision%20Document_Final_RoW-compressed.pdf

consumer of mobile data, reflecting a widespread adoption of mobile internet services.¹²

The regulatory landscape in India is primarily shaped by the Telecom Regulatory Authority of India (TRAI), which serves as the main regulator responsible for issuing recommendations on telecommunication infrastructure sharing, spectrum management, and other crucial regulatory frameworks.¹³ The Department of Telecommunications (DoT) is the key government body overseeing policy implementation and a wide array of digital initiatives and schemes, including the ambitious BharatNet project and the Digital Communications Innovation Square.¹⁴

India has launched several national initiatives to accelerate its digital transformation, which are:

- The BharatNet Project is a flagship program aimed at providing broadband connectivity to all Gram Panchayats (GPs) across the country, with over 214,000 GPs already reported as service ready.¹⁵
- The National Broadband Mission (NBM) 2.0 (2025-2030), which sets forth new objectives to ensure universal, affordable, and high-speed broadband access throughout India, with a particular focus on rural and remote areas. Its key objectives include accelerating digital communications infrastructure expansion, leveraging 5G and satellite broadband technologies, promoting green energy solutions, and creating a comprehensive digital fiber map of the country.² NBM 2.0 also sets specific targets to increase the Optical Fiber Cable (OFC) route length to 50 lakh kilometres and to fiberise 70% of telecom towers, highlighting a strong commitment to foundational infrastructure.¹⁶

¹² National Broadband Mission Connecting India - Make in India, accessed July 24, 2025, <https://www.makeinindia.com/national-broadband-mission-connecting-india>

¹³ Recommendations on Telecommunication Infrastructure Sharing, Spectrum Sharing and Spectrum Leasing - Telecom Regulatory Authority of India, accessed July 24, 2025, https://www.trai.gov.in/sites/default/files/2025-03/Recommendation_25032025.pdf

¹⁴ Initiatives taken by government-A review | Communications Today, accessed July 24, 2025, <https://www.communicationstoday.co.in/initiatives-taken-by-government-a-review/>

¹⁵ Initiatives taken by government-A review | Communications Today, accessed July 24, 2025, <https://www.communicationstoday.co.in/initiatives-taken-by-government-a-review/>

¹⁶ National Broadband Mission Connecting India - Make in India, accessed July 24, 2025, <https://www.makeinindia.com/national-broadband-mission-connecting-india>

- PM-WANI Scheme, which is designed to accelerate the proliferation of public Wi-Fi hotspots, has seen over 333,000 hotspots installed by June 2025.

2.1.3. GHANA

Ghana has achieved significant progress in internet connectivity, with an estimated internet penetration rate of 69.8% in January 2024.¹⁷ Mobile internet penetration is notably high, reaching 71.51% in January 2023. However, fixed-line internet penetration remains remarkably low at 0.33%.¹⁸ This disparity highlights a reliance on mobile networks for internet access, with high-speed mobile internet accessible only in urban centres.

Ghana's digital transformation strategy is built upon foundational initiatives such as a national biometric ID system, a digital address system, and mobile money interoperability, which together establish a robust digital ecosystem.¹⁹ The Digital Economy Policy and Strategy, launched in 2024, provides a comprehensive roadmap for leveraging digital technologies to foster economic growth, improve public services, and ensure equitable access to digital resources across the nation.

The regulatory environment is overseen by the National Communications Authority (NCA), which launched a Five-Year Strategic Plan (2024-2028) aimed at enhancing its effectiveness as a communications regulator.³⁰ The Ghana Investment Fund for Electronic Communications (GIFEC), funded by licensed telecommunications service providers, plays a crucial role in addressing the urban-rural digital divide in internet access.²⁰ Additionally, the National Information Technology Agency (NITA) operates a fiber-optic network that it leases to Internet Service Providers (ISPs), contributing to the national backbone infrastructure.

¹⁷ Digital 2024: Ghana — DataReportal – Global Digital Insights, accessed July 24, 2025, <https://datareportal.com/reports/digital-2024-ghana>

¹⁸ Ghana: Freedom on the Net 2024 Country Report | Freedom House, accessed July 24, 2025, <https://freedomhouse.org/country/ghana/freedom-net/2024>

¹⁹ Digital transformation across borders: What's at stake for Ghana ..., accessed July 24, 2025, <https://thebftonline.com/2025/06/04/digital-transformation-across-borders-whats-at-stake-for-ghana/>
Ghana: NCA launches

²⁰ Ghana: Freedom on the Net 2024 Country Report | Freedom House, accessed July 24, 2025, <https://freedomhouse.org/country/ghana/freedom-net/2024>

2.1.4. MAURITIUS

Mauritius is widely recognised as a "Cyber Island" for its exceptional internet connectivity, boasting one of Africa's highest rates. Internet penetration was estimated at 79.5% in early 2025²¹ and 75.5% in January 2024.²² Uniquely, the country reports more broadband subscriptions than its total population, with approximately 178 subscriptions per 100 inhabitants by 2024, reflecting common use of multiple connections per person.²³

The nation has made remarkable strides in key infrastructure developments. Mauritius Telecom achieved a comprehensive Fiber-to-the-Home (FTTH) rollout by the end of 2017, leading to 100% of households being passed by fiber infrastructure and phasing out older copper ADSL lines. The minimum home broadband speed is now 50 Mbps, with businesses able to access speeds up to 10 Gbps. A Tier IV national data centre further supports local hosting capabilities.³¹ For international connectivity, Mauritius is served by four international submarine cables: SAFE, LION, METISS, and T3. A fifth cable, T4, is planned to replace the ageing SAFE cable, further enhancing redundancy and capacity.²⁴ A domestic MARS cable connects the main island of Mauritius with Rodrigues, extending high-speed connectivity internally.

5G deployment in Mauritius began in 2021. Emtel achieved 60% population coverage by mid-2023 and aimed for full 5G coverage by the end of 2024, with nationwide 5G coverage projected by the end of 2025.²⁵

Mauritius is also pursuing ambitious Smart Island Initiatives. The "Smart Mauritius"²⁶ program is a significant economic development initiative focused on creating seven smart cities. These cities aim for self-sufficiency in renewable energy, water, and waste management, alongside providing state-of-the-art connectivity and smart transportation solutions. The Digital Transformation

²¹ Digital 2024: Mauritius — DataReportal – Global Digital Insights, accessed July 24, 2025, <https://datareportal.com/reports/digital-2024-mauritius>

²² Mauritius Online: How a Paradise Island is Beaming Broadband ..., accessed July 24, 2025, <https://ts2.tech/en/mauritius-online-how-a-paradise-island-is-beaming-broadband-even-from-space/>

²³ Digital 2024: Mauritius — DataReportal – Global Digital Insights, accessed July 24, 2025, <https://datareportal.com/reports/digital-2024-mauritius>

²⁴ Ibid

²⁵ Ibid

²⁶ SMART CITY SCHEME - EDB Mauritius, accessed July 24, 2025, <https://edbmauritius.org/wp-content/uploads/2023/08/Smart-City-Guidelines.pdf>

Blueprint 2025-2029 outlines further initiatives, including a Unified Government Portal, Digital Identity systems, and various Smart Infrastructure Projects, all designed to streamline public services and foster a digital economy.²⁷

2.1.5. UNITED KINGDOM

The United Kingdom has demonstrated substantial progress in both fixed and mobile broadband deployment. As of July 2024, full fibre coverage reached 69% of UK premises, representing 20.7 million homes and businesses. This marks a significant increase from just 10% in 2019, with a target set for 96% coverage by 2027.²⁸ Gigabit-capable broadband coverage achieved 84% of UK premises (25 million) by July 2024. The government's ambitious Project Gigabit aims for 99% gigabit coverage by 2032.²⁹ In terms of mobile connectivity, outdoor 5G coverage from at least one operator is available to 90-95% of premises as of July-September 2024. The government's long-term ambition is to achieve standalone 5G coverage across all populated areas by 2030.

These advancements are supported by significant government programs. Project Gigabit is a substantial £5 billion government initiative specifically designed to deliver gigabit-capable broadband to hard-to-reach communities that are unlikely to be covered by commercial market investment alone.³⁰ This program includes:

- a voucher scheme to assist eligible homes and businesses.
- The Shared Rural Network (SRN) is another key program focused on enhancing 4G mobile coverage, aiming for 95% geographic coverage by the end of 2025.
- Ofcom's Telecoms Access Review (TAR), which sets the rules for fixed broadband and business connectivity from April 2026 to 2031.

²⁷ Ministry Of IT -SC-V10.indd - mitci, accessed July 24, 2025, <https://mitci.govmu.org/Documents/MITCINewsletter/Ministry%20Of%20IT%20-SC-V10%20.pdf>

²⁸ Ofcom - UK Gigabit Broadband Cover Rises to 84% as 5G Hits 90 ..., accessed July 24, 2025, <https://www.ukfcf.org.uk/ofcom-uk-gigabit-broadband-cover-rises-to-84-as-5g-hits-90-95/>

²⁹ Ibid

³⁰ ISPA, Altnets report highlights precarious nature of UK project ..., accessed July 24, 2025, <https://cpostrategy.media/blog/2024/02/28/ispa-altnets-report-highlights-precarious-nature-of-uk-project-gigabit/>

2.2. INSTITUTIONAL ARRANGEMENTS

2.2.1. SOUTH AFRICA

South Africa's telecommunications landscape is shaped by a multi-layered institutional framework involving national regulators, government departments, state-owned entities, and local authorities.

- *Independent Communications Authority of South Africa (ICASA)*: ICASA is responsible for licensing telecommunications, broadcasting, and postal services. Its mandate includes spectrum management, consumer protection, and dispute resolution. ICASA also plays a role in promoting universal service and access by setting requirements in operator licenses for the rollout of services in underserved areas and managing contributions to the Universal Service Fund. The National Policy on Rapid Deployment also directs ICASA to establish regulations for rapid deployment, including mechanisms for dispute resolution and compensation determination.
- *Department of Communications and Digital Technologies (DCDT)*: This department is responsible for developing and implementing national policies, such as the National Policy on Rapid Deployment of Electronic Communications Networks and Facilities, which aims to reduce "red tape" and accelerate broadband infrastructure development.
- *State-Owned Entities (SOEs)*: SOEs are mandated to share their existing infrastructure for electronic communications deployment in terms of the National Policy on Rapid Deployment of Electronic Communications Networks and Facilities:
 - *Eskom*: The national electricity utility manages extensive infrastructure and servitudes that can be leveraged for telecommunications.
 - *Transnet*: The state-owned freight logistics group, which includes rail and ports, is undergoing reforms to enable open access to its networks, presenting opportunities for shared infrastructure.

- *South African National Roads Agency Limited (SANRAL)*: Responsible for the national road network, SANRAL participates in wayleave processes for infrastructure deployment within its road reserves.
- *Provincial Roads Departments and Government Water Departments/Entities*: These entities are also mandated to share their infrastructure with electronic communications licensees.
- *State Information Technology Agency (SITA) and Broadband Infraco (BBI)*: These are key implementing agencies for the SA Connect Phase 2 program, tasked with providing end-to-end broadband services and deploying Wi-Fi hotspots.
- *Municipalities*: Local governments retain significant autonomy and legal competence to draft and enforce bylaws related to land use, including wayleaves and building approvals, which are mandatory for electronic communications deployment. Standard Draft By-laws have been introduced to standardise these processes, but variations persist.

2.2.2. INDIA

India's institutional framework for electronic communications is characterised by a strong central regulatory body and government departments driving ambitious digital initiatives.

- *Telecom Regulatory Authority of India (TRAI)*: TRAI was established in terms of the TRAI Act of 1997. TRAI is responsible for issuing recommendations on telecommunication infrastructure sharing, spectrum management, and other regulatory frameworks to the Department of Telecommunications (DoT).
- *Department of Telecommunications (DoT)*:³¹ The DoT is the key government body overseeing policy implementation and various digital initiatives, including the BharatNet project and the Digital Communications Innovation Square.

³¹ Ref: Government of India (Allocation of Business) Rules, 1961 as on 07-08-2017

- *Universal Service Obligation Fund (Digital Bharat Nidhi)*: The USOF (“Digital Bharat Nidhi”) is a fund designated exclusively for specific objectives related to telecommunications.
- *Bharat Broadband Network Limited (BBNL)*: This Special Purpose Vehicle (SPV) is responsible for executing the BharatNet project, a flagship program to provide broadband connectivity to all Gram Panchayats.
- *Department of Information Technology, Electronics and Communications*: This department has been designated as a nodal agency for collecting land usage charges and application fees for government and municipal land, and for managing Right of Way (RoW) permissions through a centralised e-services portal.
- *Judicial Bodies*:
 - *District Magistrate/District Judge*: These officials participate in resolving disputes concerning the use of private property for telecommunication networks and compensation adequacy.

Telecom Disputes Settlement Appellate Tribunal (TDSAT): TDSAT serves as an appellate body for disputes between licensors and licensees, and between service providers.

2.2.3. GHANA

Ghana's institutional arrangements focus on balancing market competition with universal access goals, with a key role for its communications authority and a fund dedicated to bridging the digital divide.

- *National Communications Authority (NCA)*: The NCA is the primary regulator for electronic communications. The National Communications Authority (NCA) was established by an Act of Parliament, Act 524, in December 1996, which has been repealed and replaced by the National Communications Authority Act, 2008 (Act 769). The Authority is the statutory body mandated to license and regulate electronic communications activities and services in the country.
- *Ministry of Communications and Digitalisation*: This ministry oversees Ghana's digital transformation strategy and policy, including plans for 5G rollout and initiatives to improve connectivity.

- *Ghana Investment Fund for Electronic Communications (GIFEC):*³² Established in terms of section 32 of the Electronic Communications Act, 2008 (Act 775). Funded by licensed telecommunications service providers, GIFEC³³ plays a crucial role in addressing the urban-rural digital divide in internet access.
- *National Information Technology Agency (NITA):* NITA operates a fiber-optic network that it leases to Internet Service Providers (ISPs), contributing to the national backbone infrastructure.
- *Next-Gen Infrastructure Company (NGIC):* This consortium, with 10% government ownership, is tasked with rolling out 5G services using a shared infrastructure model to extend mobile broadband into underserved areas.
- *Land Commission:* This body oversees compensation regulations stemming from public land acquisitions.
- *Department of Town and Country Planning:* Responsible for overseeing resettlement issues related to land acquisition.
- *District/Municipal/Metropolitan Assembly and Environmental Protection Agency (EPA):* These local and environmental agencies participate in granting statutory approvals for telecommunication tower deployment, often with distinct policies and procedures.

2.2.4. MAURITIUS

Mauritius is recognised for its advanced digital infrastructure, a result of a proactive and integrated national strategy involving key government and private sector players.

- *Information and Communication Technology Authority (ICTA):* ICTA is the regulatory body that plays a role in Mauritius's digital transformation blueprint and oversees the telecommunications sector.
- *Mauritius Telecom:* Part-owned by the government and Orange S.A., Mauritius Telecom has spearheaded major infrastructure projects, including

³² Ghana Investment Fund for Electronic Communications (GIFEC) is established in terms of Section 32 of the Electronic Communications Act, 2008 (Act 775), which gives the mandate and scope of GIFEC.

³³ <https://moc.gov.gh/gifec/>

the comprehensive Fibre-to-the-Home (FTTH) rollout and international submarine cables.

- *Economic Development Board (EDB)*: The EDB administers the "Smart City Scheme," an economic development program focused on creating smart cities with state-of-the-art connectivity.
- *State Land Development Company (SLDC)*: This entity oversees smart city projects on state-owned land.
- *Judicial Bodies*: The Supreme Court of Mauritius and the Judicial Committee of the Privy Council handle appeals in high-value commercial disputes, including those related to the ICT sector.

2.2.5. UNITED KINGDOM

The UK's institutional landscape for telecommunications is characterised by a strong independent regulator and government initiatives aimed at driving nationwide gigabit and 5G coverage, often through public-private partnerships.

- *Ofcom*:³⁴ As the primary regulator, Ofcom sets the rules for fixed broadband and business connectivity. It promotes infrastructure sharing by requiring incumbent operators, such as Openreach, to provide access to their ducts and poles on fair and reasonable terms.
- *Building Digital UK (BDUK)*: Building Digital UK (BDUK) is a government organisation responsible for extending fast and reliable broadband and mobile coverage to remote areas of the United Kingdom. BDUK is responsible for Project Gigabit, a substantial £5 billion initiative designed to deliver gigabit-capable broadband to hard-to-reach communities where commercial investment alone is insufficient.
 - Project Gigabit, which is a government-funded program designed to provide gigabit-capable broadband to homes and businesses not

³⁴ Ofcom's role in terms of the Communications Act of 2003, amongst others, is:

- Granting Code powers under a statutory process.
- Revoking Code powers, e.g. if an operator no longer requires Code powers or goes out of business.
- Maintaining the public register of Code operators.
- Enforcing certain conditions and restrictions attached to the Code, but not the Code itself. The Courts handle disputes between operators and landowners/occupiers.

covered by commercial suppliers' rollout plans. The goal is to achieve 99% nationwide gigabit-capable coverage by 2032

- *Department for Science, Innovation and Technology (DSIT):*³⁵ This department participates in shaping the UK's digital infrastructure strategy, including mobile market reviews, and promoting alternative technologies like Low Earth Orbit (LEO) satellite broadband.
- *Openreach:* As BT's network infrastructure arm, Openreach operates and maintains the UK's largest fixed network. Ofcom mandates that Openreach allow competitors to rent access to its ducts and poles to facilitate infrastructure sharing and accelerate rollout.
- *Local Planning Authorities (LPAs):* These local authorities participate in the planning permission process for communications infrastructure, requiring notice from companies before installation.
- *Telecoms Alternative Dispute Resolution (ADR) Service:* This service offers evaluative mediation and expert determination for disputes related to valuation, land access, and compensation in the telecoms sector, providing a quick and cost-effective resolution mechanism.

The United Kingdom's legal framework governing electronic communications network deployment is derived from the Communications Act of 2003 and the Electronic Communications Code, with the Office of Communications (Ofcom) serving as the primary regulator and the Department for Science, Innovation and Technology (DSIT) setting strategic policy.

³⁵ Responsibilities of DSIT are:

- positioning the UK at the forefront of global scientific and technological advancement.
- driving innovations that change lives and sustain economic growth.
- delivering talent programmes, physical and digital infrastructure and regulation to support the economy, security and public services.
- R&D funding.

2.3. LEGISLATIVE FRAMEWORK GOVERNING INFRASTRUCTURE DEPLOYMENTS

2.3.1. SOUTH AFRICA

2.3.1.1. ELECTRONIC COMMUNICATIONS ACT NO 36 OF 2005

The purpose of the Electronic Communications Act No 36 of 2005 is to promote convergence in the broadcasting, broadcasting signal distribution and telecommunications sectors and to provide the legal framework for convergence of these sectors; to make new provision for the regulation of electronic communications services, electronic communications network services and broadcasting services; to provide for the granting of new licences and new social obligations; to provide for the control of the radio frequency spectrum; to provide for the continued existence of the Universal Service Agency and the Universal Service Fund; and to provide for matters incidental thereto.

Chapter 4 of the Electronic Communications Act (ECA) No. 36 of 2005 focuses on Electronic Communications Networks and Electronic Communications Facilities. Its primary purpose is to establish the legal and regulatory framework for the deployment, operation, and access to electronic communications infrastructure in South Africa.

Key Objectives of the Chapter are:

- Grants licensees' rights to enter land/waterways for infrastructure, subject to notice and conditions.
- Provide rights and obligations for licensees to enter public and private land to deploy infrastructure (e.g., fiber, towers, ducts), subject to municipal and property owner conditions.
- Permits installation under public roads, with municipal oversight and restoration obligations.
- Outlines conditions under which facilities may be removed, including due process and compensation.
- Empower ICASA to prescribe regulations, resolve disputes, and enforce compliance related to network deployment and facility access.

2.3.1.2. INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA (ICASA) ACT NO. 13 OF 2000

The purpose of the Independent Communications Authority of South Africa Act No. 13 of 2000 is to provide for the establishment of the Independent Communications Authority of South Africa to regulate broadcasting, postal and electronic communications.

2.3.1.3. INFRASTRUCTURE DEVELOPMENT ACT NO. 23 OF 2014

The Infrastructure Development Act No. 23 of 2014 was enacted to accelerate and coordinate public infrastructure development across South Africa. While it is not sector-specific, its provisions are highly relevant to digital infrastructure, particularly in the context of Strategic Integrated Projects (SIPs) and intergovernmental alignment.

Purpose of the Infrastructure Development Act (IDA) for Digital Infrastructure:

- Ensures that infrastructure projects of significant economic or social importance, including broadband, data centres, and telecom networks, are prioritised in planning, approval, and implementation.
- Empowers the Presidential Infrastructure Coordinating Commission (PICC) to designate digital infrastructure as Strategic Integrated Projects (SIPs).
- Sets timeframes for regulatory approvals, including permits, licenses, and environmental authorisation critical for telecom deployment and digital infrastructure rollouts
- Mandates collaboration between national, provincial, and municipal authorities, reducing fragmentation and enabling smoother deployment of infrastructure like fiber networks and towers.
- Grants PICC powers to expropriate land (in line with constitutional provisions) to unblock stalled infrastructure projects, including digital corridors.

These SIPs are part of the national infrastructure pipeline coordinated under the Infrastructure Development Act No. 23 of 2014, and they aim to fast-track

deployment, improve access, and stimulate economic growth through digital connectivity.

- SIP 15 (Expanding Access to Communication Technology): Focuses on universal access to broadband, especially in rural and underserved areas. Led by the Department of Communications, supported by Sentech, Broadband Infracore, USAASA, and others.
- SIP 22 (Digital Infrastructure): Includes the National Spatial Infrastructure Hub. Estimated value: ZAR 4 billion. Aims to create ~700 jobs and expand digital backbone infrastructure.
- SIP 35 (SA Connect Phase 1B Programme): Accelerates broadband rollout to schools, clinics, and government offices. Builds on Phase 1A of SA Connect.
- SIP 30 (Digitising Government Information Programme): Supports e-government transformation through digitisation of public records and services.

2.3.1.4. STANDARD DRAFT MUNICIPAL BY-LAWS FOR THE DEPLOYMENT OF ELECTRONIC COMMUNICATIONS FACILITIES

The Standard Draft Municipal By-Laws for the Deployment of Electronic Communications Facilities were developed to:

- Standardise application processes for deploying networks on municipal land, including wayleave approvals and infrastructure access.
- Clarify the relationship between municipalities and network owners, reducing ambiguity and delays.
- Capacitate municipalities, particularly rural ones, to process applications efficiently and supervise infrastructure deployment responsibly.
- Align with national policy goals, including the rapid deployment objectives under the Electronic Communications Act and broader digital inclusion strategies.

These by-laws are promulgated under the Municipal Systems Act and form part of a broader initiative led by the Department of Cooperative Governance and

Traditional Affairs (CoGTA), the Department of Communications and Digital Technologies (DCDT), and Operation Vulindlela.

2.3.2. INDIA

2.3.2.1. The Telecommunications Act, 2023

The Act consolidate the law relating to the development, expansion and operation of telecommunication services and telecommunication networks; assignment of spectrum; and matters connected therewith or incidental thereto.

Chapter III³⁶ of the act provides the process and procedure for: -

- the right-of-way for a telecommunication network in public property. (Section 11)
- the right-of-way for a telecommunication network on property not covered under public property. (section 12)
- Non-discriminatory and non-exclusive grant of right of way. (Section 13)
- A telecommunication network distinct from the property on which it is installed. (Section 14)
- Power of the Central Government to establish common ducts and cable corridors. (Section 15)
- Removal, relocation, or alteration of a telecommunication network. (Section 16)
- Notice to facility provider. (Section 17)
- Dispute resolution for Chapter III of the Act.

2.3.2.2. The Telecommunications (Digital Bharat Nidhi) Rules, 2024

The Universal Service Obligation Fund created under the Indian Telegraph Act, 1885, shall, from the appointed day, be the "Digital Bharat Nidhi", under the control of the Central Government, and shall be used to discharge functions as outlined in the Act³⁷.

³⁶ Chapter 3 of the Telecommunications Act No. 44 of 2023

³⁷ Section 24(1) of the Telecommunications Act No. 44 of 2023

The functions of the USOF (Digital Bharat Nidhi)³⁸ are:

- To formulate the procedure for bidding, including its terms and conditions, format of application, eligibility criteria and evaluation criteria for selection of Implementers under such bidding
- To formulate the procedure for inviting and evaluating applications for the selection of Implementers
- To agree with the Implementers
- To settle claims and disburse funds from the Digital Bharat Nidhi to Implementers
- To settle disputes with Implementers through mediation, arbitration, conciliation, or judicial proceeding, as may be provided for in the agreement
- To monitor, evaluate or verify the work done by Implementers through any competent body, including any third-party agencies
- To specify procedures and records, along with formats, to be maintained and furnished by Implementers
- To engage persons, including consultants, advisors, or an entity, for the purpose of planning, formulation, contract management, midterm review, verification, monitoring, financing, evaluation, impact assessment and management of schemes and projects
- To specify the terms and conditions relating to the assets created from the funds disbursed from the Digital Bharat Nidhi
- To undertake a pilot study, according to achieve the objectives of the Digital Bharat Nidhi
- To create a digital portal to enable Implementers and other stakeholders to provide services, facilitate interaction, reporting and monitoring of schemes and projects
- To perform such other functions as may be assigned by the Central Government to achieve the objectives of the Digital Bharat Nidhi.

Rule 6 enforces the sharing of telecommunication networks established under Digital Bharat Nidhi³⁹.

³⁸ Section 3(2) of the Telecommunications (Digital Bharat Nidhi) Rules, 2024

³⁹ Rule 6 of the Telecommunications (Digital Bharat Nidhi) Rules, 2024

"Any Implementer, receiving funding from the Digital Bharat Nidhi for establishing, operating, maintaining or expanding a telecommunication network, shall share and make available such telecommunication network and telecommunication services, being delivered using the telecommunication networks on an open and non-discriminatory basis, and in accordance with the instructions issued by the Administrator from time to time."

2.3.2.3. Telecommunications (Critical Telecommunication Infrastructure) Rules, 2024

The Indian government has officially designated telecommunications as critical infrastructure by notifying the "Telecommunications (Critical Telecommunication Infrastructure) Rules, 2024" under the Department of Telecommunications (DoT), which means telecom networks are considered critical for national security and economic stability and must adhere to stricter security measures and government oversight. These rules require telecom entities classified as Critical Telecommunication Infrastructure (CTI) to provide access to their network details, hardware, software, and data to authorised government personnel for inspection.

2.3.2.4. The Telecommunications (Right of Way) Rules, 2024

The Telecommunications (Right of Way) Rules, 2024, are a set of regulations in India that govern the establishment, operation, and maintenance of underground telecommunications infrastructure on public and private property. These rules, notified under the Telecommunications Act, 2023, aim to simplify procedures, facilitate faster deployment of telecom infrastructure, and streamline the 5G rollout. They supersede the 2016 Rules and the 2022 safety rules.

The Telecommunications (Right of Way) Rules, 2024 were notified on 7.09.2024 to be effective from 01st January 2025. The rules were developed in terms of Chapter III of the Telecommunication Act of 2023.

Key aspects of India Telecommunications (Right of Way) Rules, 2024 are:

- a) *Single-window clearance:* All Right of Way (RoW) applications must be

submitted through a centralised digital portal, ensuring transparency and reducing bureaucratic delays.

- b) *Two types of RoW applications process*: For public property and for other than public property.
- c) *Time-bound clearance*: If authorities fail to grant or reject an application within 67 days, permission is automatically deemed granted (except in cases of national security or public safety).
- d) *Standardised fee structure*: Uniform fees for RoW permissions across different states and local authorities. Projects notified by the Central Government (e.g., rural broadband, defence communications) are exempt from RoW fees.
- e) *Dig-once policy*: Public entities must allow telecom providers to use common ducts, conduits, and cable corridors⁴⁰ to avoid redundant digging.
- f) *Use of Street Furniture*: Telecom companies can install small cells (for 5G) on existing street infrastructure (e.g., poles, bus stops, traffic lights) without heavy fees.
- g) *Nominal Annual Charges*: Small cell installations attract minimal fees.
- h) *Compensation for Damage*: Telecom operators must compensate property owners for any damage caused during the installation or maintenance of their equipment.
- i) *Bank Guarantee Requirement*: Operators may be required to submit a bank guarantee (up to 20% of the restoration costs) to ensure accountability.
- j) *Clear Compensation Rules*: Disputes over damages are resolved based on rates set by the Central Public Works Department (CPWD) or state authorities.
- k) *Lower Fees in Rural Areas*: Small cell installations cost 50% less in rural regions to encourage connectivity.
- l) *Priority for Underserved Areas*: The government can designate "**special projects**" to expedite RoW clearances in remote locations.
- m) *GIS-Based Asset Tracking*: Telecom companies must maintain digital records of all infrastructure (e.g., cable routes, tower locations) for better planning and dispute resolution.

⁴⁰ "**Common ducts or conduits or cable corridors**" individually or collectively mean any linear infrastructure of any shape and size for housing utility lines, including telecommunication lines.

- n) *Public Entity Accountability*: Government bodies must appoint nodal officers to oversee RoW requests and ensure compliance.

2.3.2.4.1. THE CENTRALISED RIGHT OF WAY PERMISSIONS SYSTEM

The Centralised Right of Way (RoW) Permissions system functions as a collaborative institutional mechanism, bringing together all stakeholders, including Central and State/UT Governments, local bodies, and service providers, to streamline the Right of Way (RoW) application process through a unified interface.

The Centralised Right of Way (RoW) Permissions system offers a comprehensive suite of services designed to streamline the RoW application process and ensure efficient implementation of digital infrastructure across India. Key features and services include:

- a) **Unified Application Platform**: Applicants can submit RoW permission requests for any state in India through a single interface, simplifying the process and eliminating the need to interact with multiple authorities.
- b) **Centralised Application Tracking**: Users can track the status of their applications in real-time, ensuring transparency and providing visibility into the progress of the approval process.
- c) **Automated Alerts**: Applicants receive automated notifications and updates at each stage of the application processing, ensuring timely awareness of any changes or requirements.
- d) **Faster Application Approvals**: By centralising and monitoring the application pendency at a higher level, this system ensures faster and more timely approval of applications, reducing delays and accelerating the process.
- e) **Centralised Help Desk**: A dedicated help desk is available to assist applicants with any queries or issues, offering support throughout the application process and facilitating smoother interactions with authorities.
- f) **Accelerated Service Rollout**: The streamlined RoW approval process directly contributes to the faster deployment of services such as 5G, Fiberisation of Towers, and broadband connectivity, enhancing access for citizens and institutions across the country.

This system enhances operational efficiency by facilitating the rapid and seamless deployment of digital infrastructure.

2.3.2.4.2. ENTITIES INVOLVED IN RIGHTS OF WAY RULES:

Entities	Role
Department of Telecommunications (Central Govt.)	<ul style="list-style-type: none"> - Provide for the procedure to be followed by a facility provider: <ul style="list-style-type: none"> o to enter, survey, establish, operate, maintain, repair, replace or relocate the telecommunication network, including the notice period, o the manner of issuance of notice, the framework governing objections by owner or occupier of the property, how such objections would be resolved, and o matters relating to the compensation payable for any damage - Oversees national telecom infrastructure deployment. - notify infrastructure projects or classes of infrastructure projects, whether being developed by a public entity by itself, through a public-private partnership or by any other person, which may require the establishment of common ducts or conduits or cable corridors, for the installation of a telecommunication network. - Manages the central online portal for RoW applications.
Telecom Regulatory Authority of India (TRAI) – Regulatory Authority	<ul style="list-style-type: none"> - Recommends pricing and policies for RoW (e.g., fees for small cells, towers). - Resolves disputes between telecom operators. - TRAI is not involved in the RoW application

	<i>process</i>
Facility Provider	<ul style="list-style-type: none"> - Submit RoW applications via the central portal. - Enter into an agreement with the person who has ownership, control, or management over such property (public property or other than public property). - Payment of all amounts as specified and adherence to the terms and conditions - Ensure structural safety of installations (e.g., towers, cables). - Maintenance of up-to-date digital information of underground telecommunication network established by that FP, including as-built information at a frequency as specified by Central Govt., through positional intelligence/other appropriate technology, and to be shared/updated on demand, through the portal, with the designated officer, as may be notified by the Central Government.
Public Entity ⁴¹	<ul style="list-style-type: none"> - Review ROW applications and grant permission for infrastructure deployment on public property⁴² within the prescribed timelines. - Claim compensation for damages (per CPWD rates).
Property owner other than a public entity.	<ul style="list-style-type: none"> - Review ROW applications and grant permission for infrastructure deployment on other property not covered under public property within the

⁴¹ "Public entity" means, —

(i) the Central Government;

(ii) the State Government;

(iii) local authority;

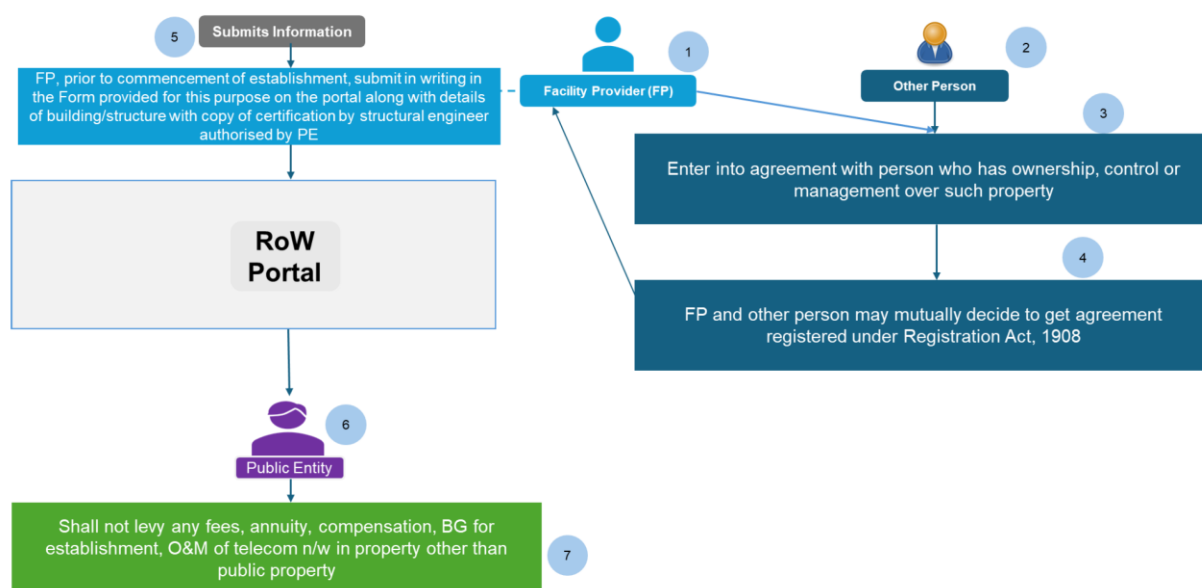
(iv) any authority, body, company or institution incorporated or established by the Central Government or the State Government, or under any statute; or

(v) any non-government entity vested with the ownership, control or management of any public facility or class of public facilities, as may be notified by the Central Government.

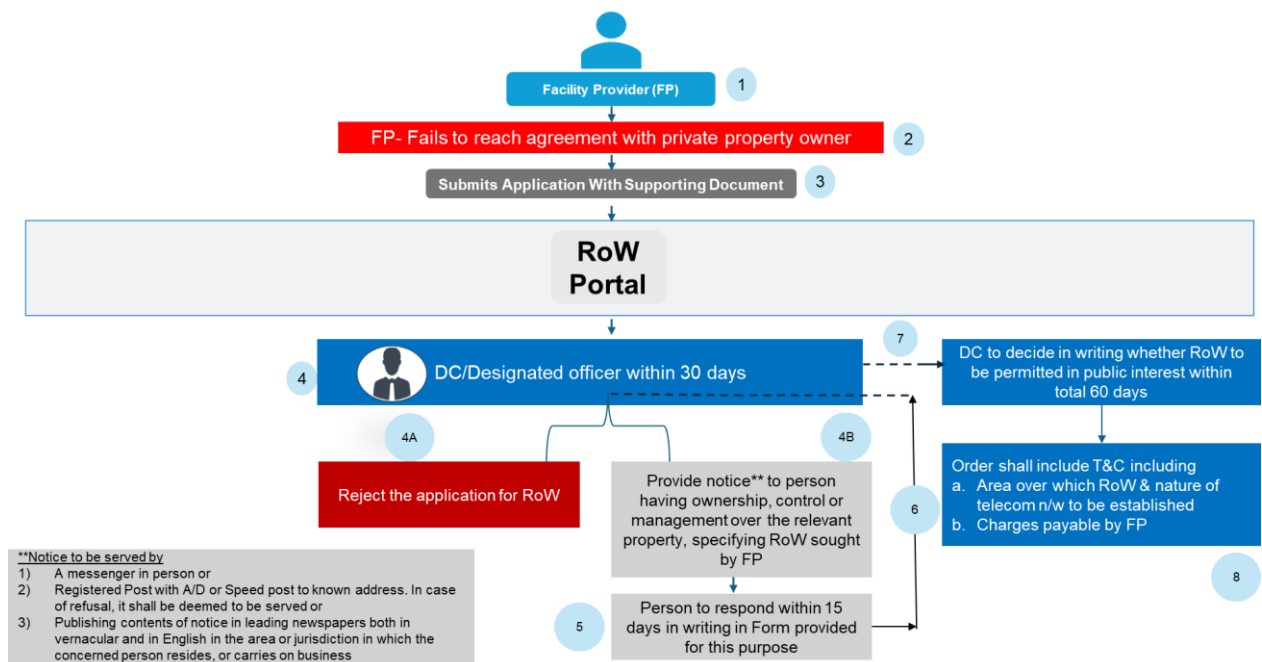
⁴² "Public property" means any property, whether movable or immovable, including any machinery, which is owned by, or in the possession of, or under the control or management of any public entity.

	prescribed timelines.
State Governments	<ul style="list-style-type: none"> - Adapt central RoW rules to local needs. - Set state-specific fees for RoW permissions. - Designate nodal officers for coordination.
Municipal Corporations	<ul style="list-style-type: none"> - Grant permissions for road digging, pole installations, and street furniture usage. - Ensure compliance with urban planning and safety norms.
District Magistrate or District Judge	<ul style="list-style-type: none"> - Resolve RoW disputes. District Council to decide in writing whether RoW is to be permitted in the public interest within a total of 60 days - Facilitate land acquisition for telecom projects in the public interest.

2.3.2.4.3. APPLICATION PROCESS FOR INSTALLING A TELECOMMUNICATION NETWORK IN PRIVATE PROPERTY



2.3.2.4.4. PERMITTING ROW BY THE CENTRAL GOVERNMENT IN THE PUBLIC INTEREST (RULES)



2.3.2.4.5. SINGLE WINDOW PORTAL

“GatiShaktiSanchar Portal” is a collaborative institutional mechanism between all stakeholders, including Central and State/UT Governments (s), Local bodies, and Service Providers, to facilitate the Right of Way (RoW) Application Process through a single interface.

This portal envisages bringing transparency, accountability and responsiveness to all stakeholders while processing the application. This has further taken a giant leapfrogging towards “Ease of Doing Business” as the application process for the installation of Digital Infrastructure is being delayed due to inconsistency and uncertainty of policy and process, and it requires maintaining a fast-tracking application process to overcome the challenges of implementation of Right of Way Rules-2016. Every application for permission under these Rules shall be made by the licensee on an electronic portal developed by the Central Government through a Single web-based portal/information or data (updated in real-time) with the centralised portal of the Central Government. All appropriate

authorities/local bodies shall, within 3 months from the date of notification of this Policy, integrate their respective.

2.3.2.4.6. TYPES OF RIGHT OF WAY APPLICATIONS

The use of a portal – Single window usage, which is driven from the top by the Central Government.

- The two types of RoW Applications – For Public Property and for other than Public Property
- The ROW or Permission covers the following: Tower, OFC/ submarine cable, Small Cell, and Street Furniture

Application fees/ Rental Fees and Compensation for damages of which are specified for the public entities. For Private entities, the fees are governed by the commercial contracts signed by the parties⁴³.

2.3.3. MAURITIUS

2.3.3.1. Information Communication Technologies Act

Mauritius' telecommunications sector is regulated by the Information and Communications Technologies (ICT) Act, 2001. This Act provides a broad regulatory framework that governs radio, broadcast, and online communications. The ICTA is the designated regulatory body, responsible for licensing and regulatory functions, including the determination of license types and the approval of prices and tariffs.

Mauritius does not have a specific regulation on "Right of Way" for the telecommunications infrastructure; however, the Information and Communication Technologies Act of 2001, known as the ICT Act, has Section 27 on public operators entering premises

(1) A public operator shall, subject to subsection (2), have authority to -

(a) enter any property for the purpose of exercising any of his powers

⁴³ Telecommunications Right of Way Rules, 2024.

under his licence;

(b) establish any installation or apparatus on, over, under or across any land or road.....

Statutory and legal background of the Universal Service Fund (USF)

The Information and Communication Technologies Authority (ICTA) has the statutory duty, under sections 18(1)(w), and 21(1) of the Information and Communication Technologies Act, to establish and manage a Universal Service Fund (USF).

The Fund was set up under the Information and Communication Technologies (Universal Service Fund) Regulations 2008, and its basis was established as a principle under section 16(a) of the Act.

2.3.3.1.1. REGISTRATION AND MODIFICATION OF RADIOCOMMUNICATIONS INFRASTRUCTURE

When rolling out the broadband, the Licensees are required to electronically register a radiocommunications infrastructure using the ICTA Online Portal, as detailed in the Guidelines for the Registration of Base Stations. The ICTA also conduct the audits of the installations registered on its online portal. Auditing of a radiocommunications infrastructure is based on the following considerations:

- technical data provided in the Declaration of Compliance;
- calculations of EMF exposure for the specific site;
- on-site exposure level measurements;
- implementation of adequate safety measures on site (exclusion zones & safety signs);
- compliance with provisions of this Standard; and
- whether the Licensee has a history of similar breaches or a poor record of compliance.

2.3.3.2. Planned Building Guidelines (PB) in Mauritius

PBG7 Telecommunications refers to Section 7 of the Planned Building Guidelines (PB) in Mauritius, specifically focusing on telecommunications infrastructure.

These guidelines are mandatory for telecom operators and infrastructure providers in Mauritius. Non-compliance can result in fines and sanctions.

Some of the more important section of the PB G7 covers the following:

- a) Telecom Towers and Antennas: Regulations governing the installation, height, and location of telecom towers and antennas.
- b) Fiber Optic Cables: Requirements for the deployment of fiber optic cables, including routing, depth, and protection.
- c) Electromagnetic Compatibility (EMC): Regulations ensuring telecom infrastructure complies with EMC standards to minimise interference.

2.3.4. UNITED KINGDOM

2.3.4.1. Communications Act 2003

The purpose of the Act is:

- to confer functions on the Office of Communications;
- to make provision about the regulation of the provision of electronic communications networks and services and the use of the electromagnetic spectrum;
- to make provision about the regulation of broadcasting and the provision of television and radio services;
- to make provision about mergers involving newspapers and other media enterprises and, in that connection,
- to amend the Enterprise Act 2002;
- and for connected purposes.

2.3.4.2. Barrier Busting and access to property issues

The task force focuses on barriers and potential or known issues in the key touchpoints between industry and public services, such as street works, access to public assets, planning, regulation, and communications.

The taskforce aims to resolve or reduce such barriers to create the right environment to deliver digital infrastructure at pace to provide mobile phone connectivity and fixed broadband to homes and businesses. The taskforce works

collaboratively across the public sector, telecommunications industry, and the telecommunications regulator to:

- explore the barriers to the deployment of digital infrastructure in UK to understand their causes and impacts
- identify ways to address those barriers
- provide advice on potential interventions to resolve or reduce those barriers
- bring knowledge and experience to help identify best practices and amplify “what good looks like”
- where possible, help to support and promote innovation and innovative solutions to support this work

2.3.4.3. The Office of the Telecoms Adjudicator (OTA)

The Office of the Telecoms Adjudicator (OTA) plays a role in resolving disputes related to telecommunications infrastructure, including right-of-way issues. They can facilitate mediation between parties and may be appealed to if a telecoms supplier faces challenges accessing land for deployment.

2.3.4.4. Electronic Communications Code (ECC)

The electronic communications code is a set of rights that the Government makes available to assist telecoms providers to deploy electronic communications networks or systems of infrastructure.

Code operators have the right to upgrade and share their networks/infrastructure on private land and to assign their agreements to other Code operators. Code powers can be granted for one or both statutory purposes:

- Provision of an electronic communications network
- Provision of a system of infrastructure

Code operators are required to have funds to cover the liabilities relating to works in public highways. These liabilities relate to costs that might be incurred by

highway authorities following the failure of a Code operator (such as going out of business). The main liabilities are:

- Liabilities to highway authorities for roads that are not properly reinstated (incl. any damage caused by ECN or SOI).
- Liabilities to highway authorities for completion of work that was in progress when the business failed.
- Removal or making safe any redundant infrastructure already deployed on highways (e.g. take down poles or fill in joint boxes).
- Code powers usually have insurance or another financial instrument (bond, escrow etc).

2.3.4.5. Telecommunications Infrastructure (Leasehold Property) Act 2021 (TILPA)⁴⁴

This Part of this code makes provision for the court to make an order imposing an agreement which provides that code rights are exercisable by an operator to provide an electronic communications service to leased premises where—

- a) the rights are required in respect of land, which is connected to the leased premises, and
- b) the occupier or another person with an interest in the land has not responded to repeated notices given by the operator seeking agreement to confer or otherwise be bound by the rights.

2.3.5. GHANA

2.3.5.1. Electronic Communications Act Of 2008⁴⁵

The Electronic Communications Act, 2008 (Act 775) is the primary legislation governing telecommunications. The Act provides for the regulation of electronic communications, the regulation of broadcasting, the use of the electromagnetic spectrum and for related matters. It applies;

- to electronic communications and broadcasting providers, and

⁴⁴ <https://www.legislation.gov.uk/ukpga/2021/7/contents>

⁴⁵ <https://nita.gov.gh/theevooc/2017/12/Electronic-Communications-Act-775.pdf>

- electronic communications and broadcasting networks.

Section 21 grants network operators the important right to install and maintain their facilities in, over, or under roads and public grounds, although this right is subject to compliance with relevant regulations. Addressing the physical infrastructure, Section 81 of the Act focuses on the construction of aerial masts and towers that exceed forty-six meters in height, mandating certification from the Ghana Civil Aviation Authority (GCAA) to ensure aviation safety and promoting the principle of co-location of infrastructure by different operators.

2.3.5.2. Electronic Communications Regulations of 2011⁴⁶

The Electronic Communications Regulations, 2011 (LI 1991), were promulgated under the authority of Section 97 of the Electronic Communications Act, 2008 (Act 775), to provide the detailed rules and procedures necessary for the effective implementation of the Act. These regulations cover an extensive array of topics crucial to the electronic communications industry. These include the fundamental principles that govern the industry, such as the promotion of universal access and service, the imperative of non-discrimination in the provision of services, the fostering of fair competition among operators, the safeguarding of the security of public communications networks and services, and the protection of the privacy and secrecy of communications.

The regulations also provide specific details regarding the application process for the construction of aerial masts or towers that exceed forty-six meters in height, complementing the provisions in the Electronic Communications Act. LI 1991 serves as the essential detailed rulebook for the electronic communications sector in Ghana, elaborating on the broad principles laid out in Act 775 and providing the practical guidance necessary for the day-to-day operations and infrastructure deployment within the industry. The comprehensive scope of these regulations underscores the thorough regulatory oversight of the sector, addressing a wide spectrum of issues from service delivery standards to the physical infrastructure that underpins it. The specific emphasis on co-location within these regulations

⁴⁶ <https://nca.org.gh/wp-content/uploads/2020/09/Electronic-Communications-Regulations-LI1993.pdf>

highlights a key strategy for promoting efficient and sustainable network deployment.

2.3.5.3. National Communications Authority ACT⁴⁷

This is an ACT to establish the National Communications Authority as the central body to license and regulate communications activities and services in the country, and to provide for related purposes. The functions of the Authority are defined in section 3 of the NCA Act.

2.3.5.4. Guidelines for the Deployment of Tower and Antenna in Ghana

The National Communications Authority (NCA), under the authority granted by Section 3 (r) of the National Communications Authority Act, 2008 (Act 769), has issued comprehensive Guidelines for Deployment of Communication Towers and Antennas. These guidelines are designed to ensure that the deployment of communication towers and antennas across Ghana adheres to all relevant standards and regulations, guarantees the health and safety of the public, and effectively protects both the environment and the visual landscape. The guidelines apply to a wide range of stakeholders, including electronic communications, cellular network operators, tower owners, and any entities involved in the installation, operation, or maintenance of communication towers, antennas, base stations, and related infrastructure.

These Guidelines articulate a comprehensive set of objectives aimed at the responsible and sustainable deployment of communication towers and antennas:

- To safeguard the environment by promoting efficient land utilisation and optimising the installation of towers and antennas.
- To actively encourage owners of towers and antennas to locate their infrastructure in areas where any adverse impact on the community is

⁴⁷ <https://nita.gov.gh/theevooc/2017/12/Ghana-National-Communications-Authority-Act-769.pdf>

minimized to the greatest extent practicable.

- To ensure that all relevant stakeholders are fully informed and consulted before the commencement of any siting or construction activities related to towers or related facilities.
- To mandate that operators, tower and antenna owners, and managers comply with the standards and procedures established by all other relevant State Permitting Agencies, including adherence to all applicable laws.
- To ensure that all entities involved follow proper technical and legal processes when erecting towers, installing alternative structures or facilities, or installing antennas.
- To foster community understanding of the various issues associated with the design and construction of towers or the installation of antennas and to provide meaningful opportunities for community input in the decision-making process.
- To actively encourage owners of towers and antennas to configure their infrastructure in a manner that minimises any adverse visual impact on the surrounding landscape.
- To strongly encourage the practice of co-location of equipment on existing towers to significantly reduce the proliferation of new towers, thereby achieving the most efficient use of communications facilities.
- To enhance the ability of operators to provide their services to the public in a more effective and efficient manner through optimised infrastructure deployment.
- To ensure the protection of the public, workers involved in the deployment, and the environment from any potential adverse effects of radiation exposure emanating from towers and antennas.

2.4. DISCUSSION

This section analyses key findings from benchmark countries, highlighting regulatory frameworks, implementation strategies, and lessons applicable to South Africa's rapid deployment challenges. Each country offers distinct

approaches to infrastructure sharing, permitting processes, and dispute resolution.

2.4.1. INDIA

As the world's largest mobile data consumer, India has developed a highly structured system to manage massive infrastructure deployment demands. The country's centralised governance model provides valuable insights for standardising processes across multiple jurisdictions.

ICASA visited the Telecommunications Regulatory Authority of India (TRAI) from 10 to 11 March 2025 for a benchmark visit.

2.4.1.1. Dispute Resolution

TRAI is empowered to regulate and adjudicate disputes and dispose of appeals on matters relating to the telecom sector.

Common disputes with Private Property owners:

- Excessive RoW charges or compensation for establishing telecom infrastructure
- Hindrance / non-cooperation by PSU/private entities in conducting digging activities
- Increase in Rental for telecom towers established on private property
- Network disruption by unauthorised switching of site/damage to infrastructure
- Not allowing access to premises for conducting O&M activities
- Not allowing the removal of equipment after contract termination
- Public concerns over EMF radiation
- Coercive action or fiber cut
- Title of land; disputed property
- Illegal repeaters & jammers
- Public Concern
- Permission from the Municipal Corporation

The TRAI Act was amended in the year 2000 to bifurcate the regulatory and adjudicatory functions by setting up the Telecom Disputes Settlement and Appellate Tribunal (TDSAT) and Telecom Regulatory Authority of India (TRAI).

TDSAT was set up to adjudicate any dispute between the licensor and a licensee, between two or more service providers, between a service provider and a group of consumers, and to hear and dispose of appeals against any direction, decision, or order of TRAI.

The Telecom Disputes Settlement and Appellate Tribunal (TDSAT) is a body that settles disputes and appeals related to the telecom sector in India. It was established in 1997 under the Telecom Regulatory Authority of India Act.

2.4.1.2. Right-of-way

India had similar challenges to South Africa, where each state had its own ROW rules. The central government then developed the Rules in 2016 and subsequently amended the same in the year 2022 for both overground and underground telecom infrastructure. The right of way rules are to facilitate the installation of telecom infrastructure, such as cell towers, fiber optic cables, and other equipment.

The right-of-way rules were amended in the Telecommunications Act of 2003, which was then followed by the right of way rules 2024, which were enacted by the Department of Telecommunications.

The permission for right of way granted to a telecom facility provider remains valid automatically for the same duration as the provider's underlying telecom license or authorisation (or exemption from needing one) granted by the Central Government. Furthermore, this right-of-way permission automatically continues to be valid if the underlying telecom license/authorisation/exemption is renewed by the Central Government under the relevant telecom laws (Telecommunications Act, 2023 or Indian Telegraph Act, 1885, and their rules).

In 2022, TRAI made recommendations on the use of street furniture for small cells and aerial fiber deployment.⁴⁸

2.4.1.3. Infrastructure Provider Licensing

⁴⁸ https://www.trai.gov.in/sites/default/files/2024-09/Recommendations_29112022_0.pdf

The infrastructure provider is required to register for the Infrastructure Provider Category-I (IP-I)⁴⁹ to exercise the right of way rights. IPI-I include passive infrastructure such as duct, fiber, tower and right of way to provide infrastructure to licensed Telecom Service Providers on a rental, lease, or sale basis.

2.4.1.4. Coverage Information

The Department of Telecommunications is responsible for collecting coverage data and USOF progress reports. The DoT also ensure the safety of telecoms towers and issues type approval certificates for telecommunications equipment.

Projects to facilitate connectivity in India:

- BharatNet,
 - Bharat Broadband Network Limited (BBNL) is a Special Purpose Vehicle (SPV), set up by the Government of India under the Administrative Ministry of Communication & IT, Department of Telecommunications for the establishment, management, and operation of National Optical Fibre Network (NOFN).
 - one of the biggest rural telecom projects in the world, implemented in a phased manner to all Gram Panchayats (approximately 2.5 lakh) in the country for providing non-discriminatory access to broadband connectivity to all the telecom service providers. The objective is to enable access providers like mobile operators, Internet Service Providers (ISPs), Cable TV operators, and content providers to launch various services such as applications like e-health, e-education, and e-governance in rural and remote India. So far, 2,14,325 Gram Panchayats are connected through the BharatNet project, and 6,93,303 Km of OFC has been laid.

⁴⁹ An IP-I registered company can provide infrastructure services such as dark fibres, Right of Way (ROW), duct space, and towers and poles to licensees of Telecom Services licensed under Section 4 of Indian Telegraph Act, 1885 on mutually agreed terms and conditions. IP-1 registration holders shall also share the above-mentioned infrastructure with the entities as may be specified by the Central Government in the interest of national security and public interest and as per terms and conditions which may be specified by the Central Government

- Additionally, 12,81,564 Fibre-To-The-Home (FTTH) connections are commissioned, and 1,04,574 Wi-Fi hotspots are installed to ensure last-mile connectivity. (as on 26.05.2025)

The infrastructure deployed through USOF enforces infrastructure sharing with other Telecom Service Providers without restrictions.

2.4.2. MAURITIUS

Mauritius demonstrates how small island nations can achieve comprehensive connectivity through strategic infrastructure leverage. The "Cyber Island" model emphasises mandatory technical standards and innovative reuse of existing assets.

In Mauritius, the Information and Communication Technologies Authority (ICTA) is the regulatory body for the ICT sector. While the ICTA issues licenses and guidelines, the interaction with local authorities for physical deployment permits is also relevant. For instance, the Central Electricity Board (CEB) coordinates with Municipal and District Councils for plan approvals related to building and land use permits, with the CEB providing its stance within 5 working days of notification from the local authority. The National Electronic Licensing System (NELS) also facilitates online applications for permits like the Building and Land Use Permit. The ICTA, as the regulator, established the following:

- a) The rental rates for pole attachments are based on a cost-oriented approach that is as low and close to uniform as possible.
- b) The timeline for each access process and reform the process for resolving disputes regarding infrastructure access.
- c) means to collect and make available information regarding the location and availability of poles, ducts, conduits, and rights-of-way.

Where any person suffers any prejudice caused to his property or interest in the property through the acts or omissions of a public operator, he/she may apply for compensation to the ICTA.

ICTA indicated that the Operators in Mauritius are using the overhead fibre optic cables, often leveraging the existing Central Electricity Board (CEB) infrastructure with OPGW (Optical Ground Wire) for a national fibre-optics backbone, promoting ultra-high-speed broadband services. CEB FiberNet, a company owned by the CEB, provides a national fibre-optics backbone connecting CEB substations and submarine cable stations for international connectivity.

The Central Electricity Board (CEB) requires an Environmental and Social Management Plan (ESMP) for projects, which is reviewed and approved by the Bank and disclosed nationally. The National Electronic Licensing System (NELS), operated by the Economic Development Board (EDB), facilitates online applications for various licenses, including the Environmental Impact Assessment (EIA). EIA applications involve a processing fee, public inspection, and comments for 21 days, and review by concerned authorities within 14 days, culminating in a recommendation to the Minister of Environment.

ICT Authority (ICTA) has issued "Guidelines on Security Measures" for licensed telecommunication operators, with a focus on enhancing the security and resilience of nationwide infrastructure, including 5G networks, and managing risks associated with third-party suppliers. A specific "Network Infrastructure Provider Licence – A" is granted to entities that own and provide access to various network infrastructure facilities, such as earth stations, cables, wireless equipment, towers, posts, ducts, and pits, exclusively to licensed service providers rather than directly to the public.

The ICTA's "Reference Interconnect Model" also seeks to ensure equitable access to the incumbent operator's network. The ICTA's "Reference Interconnect model" aims to ensure "democratic access" to the incumbent operator's network, actively encouraging physical co-location of apparatus and plant where mutually agreed upon. The "Network Infrastructure Provider Licence – A" specifically authorises entities to own and provide access to network infrastructure facilities, including towers and ducts, to duly licensed service providers. This licensing category facilitates a wholesale model for infrastructure.

Mauritius has detailed design guidelines for the siting and design of radio telecommunications equipment. These guidelines suggest that new telecommunication base stations should be located as far as possible from

sensitive locations unless engineering or network objectives necessitate otherwise. If a new tower/antenna is proposed near sensitive locations, a detailed rationale is required, and public consultation must be held. The guidelines also specify indicative building setbacks from boundary limits based on building height, with increased setbacks for heights beyond 25 meters. Tower heights in urban areas are typically 25m to 30m, while suburban and rural areas may see heights of 30m to 40m. The design of support structures should be compatible with the area's character, and visual impact mitigation through colour, fencing, screening, and landscaping is encouraged for ground-located equipment shelters.

2.4.2.1. Other Discussions

Broadcasting in Mauritius is regulated in terms of the Independent Broadcasting Authority Act, No. 29 of 2000 (the IBA Act). Mauritius is one of the few African countries that has completed the transition to Digital Terrestrial Television, switching off analogue television transmitters on 17th of June 2015, in line with the ITU deadline for the region.

USAF model and Funding model: The foundation for the USF in Mauritius is established under Section 16(a) of the ICTA Act which states that one of the objects of the ICT Authority is to "democratize access to information. During the exclusivity period the incumbent operator, Mauritius Telecom (MT), had been entrusted with the obligation of universal service provision as part of its licence condition. In a liberalised environment, to ensure a level playing field, the universal service obligation of the pre-liberalisation period may no longer be imposed on MT now. The ICTA is statutorily mandated to establish and manage the USF.

- a) The USF has been used to finance initiatives such as providing basic broadband connections at affordable prices (e.g., 256kbps for Rs 200 per month) to empower Mauritian citizens with internet access.
- b) According to ITU guidelines, operators should contribute a portion of all revenues derived from services that are directly or indirectly linked to the basic and advanced ICT infrastructure, including the very services this fund will support. Such services include all basic local and long-distance

telephone services and related features, all data transmission, private network, and value-added communication services, mobile services, all revenues from interconnection, settlements, and other services rendered to foreign network operators, all revenues from communications equipment sales and rentals, all retail and wholesale Internet access and related services, cable TV and multimedia services.

2.4.3. UNITED KINGDOM

2.4.3.1. Building Digital UK (BDUK)

The UK's mature telecommunications market offers lessons in balancing commercial rollout with universal service obligations. Its framework combines market incentives with regulatory interventions to address both urban and rural connectivity gaps.

Building Digital UK (BDUK) is a government organisation responsible for extending fast and reliable broadband and mobile coverage to remote areas of the United Kingdom. By collaborating with suppliers, communities, local authorities, and industry partners, BDUK aims to enhance digital connectivity, stimulate economic growth, and improve the lives of residents in these regions.

The organisation's efforts are primarily channelled through two key initiatives:

- Project Gigabit, which is a government-funded program designed to provide gigabit-capable broadband to homes and businesses not covered by commercial suppliers' rollout plans. The goal is to achieve 99% nationwide gigabit-capable coverage by 2032, with numerous local, regional, and cross-regional contracts already in place to facilitate this.
- The Shared Rural Network, which is a joint venture between the government and major UK mobile network operators, focuses on expanding 4G mobile coverage to areas with limited or no service. This initiative involves public and private investment in a shared network of phone masts, aiming to connect an additional 280,000 premises and 16,000 kilometres of roads. The anticipated benefits include improved connectivity for

individuals and businesses, enhanced emergency services, a boost to tourism, and the promotion of more efficient farming practices.

2.4.4. GHANA

Ghana's approach highlights solutions for emerging economies with mixed urban-rural connectivity needs. The country's emphasis on enforced infrastructure sharing and streamlined permitting provides practical models for accelerating deployment.

The Ghana National Communications Authority (NCA) hosted ICASA on a benchmark visit from 28th to 30th May 2025 at the NCA Tower in Accra. The purpose of the visit was to enhance bilateral collaboration and exchange knowledge regarding the NCA's contribution to universal access implementation strategies. Rev. Ing. Edmund Y. Fianko, Acting Director General of the NCA, underscored the long-standing bilateral relationship between Ghana and South Africa and expressed appreciation for ICASA's decision to benchmark with Ghana. He highlighted the pivotal role played by the Ghana Investment Fund for Electronic Communications (GIFEC) in driving universal access, noting that licensed operators contribute 1% of their revenue to the Fund to support ICT infrastructure in underserved communities.

ICASA also engaged with key stakeholders, including the Ghana Investment Fund for Electronic Communications (GIFEC), American Tower Company (ATC), the West Africa Cable System (WACS), and representatives from selected Metropolitan, Municipal, and District Assemblies (MMDAs). The delegation also participated in a series of technical meetings to gain deeper insight into the structures, partnerships, and policies driving Ghana's progress toward full digital inclusion.

In Ghana, deploying communication towers and antennas requires obtaining necessary permits and complying with specific guidelines to ensure safety and prevent interference with air navigation. These guidelines involve obtaining permits from various authorities like the Ghana Civil Aviation Authority (GCAA), the Radiation Protection Agency (RPA) of the Ghana Atomic Energy

Commission (GAEC), and the Metropolitan, Municipal, and District Assembly (MMDA).

Aspects of the guidelines to be revised include a requirement for parties intending to construct a tower to demonstrate that all reasonable steps have been taken to investigate tower sharing before applying for a permit to construct a new tower within a specified radius of 300m in built-up areas and 200m elsewhere

The process for obtaining a permit shall not exceed ninety (90) calendar days from the date of submission of all relevant documents to the MMDAs.

An Inter-Ministerial Committee (IMC) was inaugurated to champion the development and implementation of a solution framework. The IMC instituted an Industry Technical Committee (ITC) headed by the National Communications Authority (NCA) to collaborate with industry and other stakeholders: Environmental Protection Agency (EPA), Ghana Civil Aviation Authority (GCAA), Ghana Atomic Energy Commission (GAEC), Metropolitan, Municipal and District Assemblies (MMDAs) to develop a set of guidelines for the institution of a one-stop-shop permitting scheme for the deployment of communication towers.

2.4.4.1. Broadband Policy

The Ghana broadband policy acknowledges that to promote the sustainable deployment of ICT, it is vital that the value of the information infrastructure is made contingent upon the ability the development of the national broadband policy is aimed at achieving the broad strategic goal to promote and facilitate initiatives targeted at the development of reliable, fast adaptive and robust national ICT backbone and infrastructure to support intra and inter-agency electronic service delivery and information exchange to benefit the entire citizen. Specifically, the broadband policy is to complement the attainment of the following strategic objectives:

- To promote the development of world-class ICT infrastructure in Ghana.

- To facilitate and encourage the development of a nationwide physical infrastructure to support sustainable economic growth.
- To increase the overall capacity for the transmission of data, voice, video, and internet services nationwide.

This has led to major investments by the private sector in new submarine cables circumventing Africa and landing in Ghana (e.g. Eassy in the East; ACE, WACS in the West among others) This is paving the way for the roll out of communications backbones because the development of terrestrial fiber networks is closely linked with the availability of new submarine cable connectivity.

Most of the population living outside major urban areas remains unserved or underserved and is unlikely to benefit directly from broadband backbone infrastructure competition. If backbone networks are to reach beyond these areas, as a universal right of the people, then, some form of public support or incentive is a necessity, this support being more effective if provided in partnership with the private sector.

Currently, Ghana is connected by fibre to its neighbouring countries, Togo to the east and to the north to Burkina Faso.

The infrastructure statistics discussed above suggest that many Ghanaians living in remote and underserved communities is not benefiting from the digital boom and are lagging in the march towards e-government implementation.

The Ghana Investment Fund for Electronic Communications (GIFEC) acts as the Universal Service Fund, supporting the rollout of the National Backbone, connecting underserved areas, and promoting shared access to broadband through community information centres To correct the imbalance therefore the government, through the Ghana Investment Fund for Electronic Communications

(GIFEC), has also initiated projects that facilitate citizens' access to connectivity and thereby government activities.

2.4.4.2. GIS Database

The owner(s) of a tower shall provide information to the NCA to maintain a database of towers that are available for collocation.

2.4.4.3. Dispute Resolution

The regulations state that:

- Operators shall collaborate in negotiating co-location agreement issues relating to site access, security access, fair rates, damage insurance and compensation.
- Where there are disputes arising out of co-location on towers, the areas of contention shall be identified and referred to the National Communications Authority (NCA) for resolution.
- The NCA shall establish within five (5) working days a dispute resolution process in accordance with provisions for dispute resolutions in Section 84 of the Electronic Communications Act, 2008, Act 775 and Regulation 154 of the National Communications Regulations, 2003, LI 1719.

2.4.4.4. Operation of American Towers Company

The NCA issues a Tower Infrastructure License to enable entities to build and maintain passive communications infrastructure facilities for lease, rental, or sale to Communications Services Operators or Providers licensed/registered /authorised by the NCA. Key players include American Tower Company (ATC), Helios Towers Ghana (HTG), and Phoenix Towers Limited. These companies lease or sell tower space to mobile network operators (MNOs) like MTN, Vodafone, and Airtel Tigo

Due to the challenges associated with the siting of communications towers and public concerns, specifically, issues related to health, aesthetics, and safety, the NCA implemented some reforms in the tower infrastructure space. These include

the development of new guidelines for the deployment of Communications Towers, and licensing new companies besides the existing MNOs to provide passive telecommunications tower services.

There are over 6,500 Tower sites in Ghana. The towers are made up of Monopole Towers or Post Masts, Guyed Towers, Self-Supporting Towers, and Roof Mounts. Benefits of service to the public /consumers.

2.4.4.5. Operation of WACS

The NCA grants Submarine Cable Licences to Licensees to establish and operate an optical fibre submarine cable network and related cable landing station (s) in Ghana.

The first submarine fibre cable was landed in Ghana by the SAT-3 consortium, of which the Government of Ghana, through Ghana Telecom was a member. Currently, Ghana has five (5) Submarine Cable Providers: SAT-3, MainOne, WASC, Glo and ACE.

This licence allows licensees to build and operate Submarine Terminating Line Equipment (STLE) to terminate international cable or spur off an international cable, as well as provide for domestic and/or international interconnection. A submarine cable license must be obtained before landing or spurring off a submarine cable in Ghana.

2.4.4.6. Rights Of Way Experience by Airtel

One of the licensee Airtel has shared their experience with the rights of way. The challenges with the right of way include:

- Excessive ROW charges or compensation for establishing a telecom infrastructure.
- Hinderance or lack of cooperation by PSU/private entities in the trenching activity.
- Network disruption caused by the unauthorised switching off the site by the landlord and damage to the infrastructure.

- Title of land ownership and disputed property.
- Coercive action and fiber cuts during construction and through vandalism.

3. THE FINDINGS OF THE BENCHMARKING STUDY

India has established a highly centralised and standardised approach to expedite network deployment. The cornerstone is the Telecommunications Act (2023) and the Right of Way (RoW) Rules (2024), which mandate a single-window digital portal (GatiShaktiSanchar) for all RoW applications. This system ensures transparency and imposes strict timelines: approvals are automatically granted if authorities fail to respond within 67 days. Fees and compensation for damages are standardised nationally using Central Public Works Department rates, eliminating arbitrary municipal charges. Critical innovations include a "dig-once" policy requiring public entities to share ducts/conduits, minimal fees for small cells on street furniture (with 50% discounts in rural areas), and exemptions for national projects like rural broadband. The specialised Telecom Disputes Settlement & Appellate Tribunal (TDSAT) adjudicates disputes, while the Universal Service Obligation Fund (Digital Bharat Nidhi) enforces infrastructure sharing in backbone projects like BharatNet, which connects over 214,000 villages.

Mauritius achieved near-universal fibre coverage through strategic infrastructure leverage and binding technical standards. Operators extensively reuse existing assets, notably deploying fibre on the Central Electricity Board's (CEB) power poles using Optical Ground Wire technology. While no standalone RoW law exists, Section 27 of the ICT Act (2001) grants statutory rights to access property, subject to compensation for damages. Permitting is streamlined via the National Electronic Licensing System (NELS). The ICT Authority (ICTA) regulates pole attachment fees on a cost-oriented basis and enforces mandatory Planned Building Guidelines (PBG7), which dictate tower placement, fibre routing, and electromagnetic standards with penalties for non-compliance. The Universal Service Fund (USF), financed by a 1% operator revenue levy, subsidises affordable broadband access and digital inclusion initiatives, ensuring equitable service distribution.

The United Kingdom prioritises market competition and systemic barrier reduction. Ofcom mandates open access to incumbent infrastructure (e.g., Openreach's ducts/poles via Physical Infrastructure Access rules), enabling over 100 alternative

network operators to deploy fibre efficiently. The Electronic Communications Code (ECC) grants operators' statutory rights to install, upgrade, and share infrastructure on public/private land, with automatic renewal tied to licences. A dedicated Barrier Busting Taskforce addresses deployment hurdles (e.g., street works delays) through cross-sector collaboration. Dispute resolution involves mediation by the Office of the Telecoms Adjudicator (OTA), while courts can impose access agreements under the Telecommunications Infrastructure Act (2021) where landowners are unresponsive. For underserved areas, Project Gigabit—managed by Building Digital UK—provides state subsidies to complement commercial rollout, targeting nationwide gigabit coverage by 2030.

Ghana emphasises infrastructure sharing and targeted universal access. The National Communications Authority (NCA) enforces strict co-location requirements: operators must prove investigation of tower sharing within 300m (urban) or 200m (rural) before new builds. Municipal permits are capped at 90 days. A centralised GIS tower database promotes resource efficiency, while disputes are resolved by the NCA within five working days. The Ghana Investment Fund for Electronic Communications (GIFEC), funded by a 1% operator levy, expands backbone connectivity to underserved regions and supports community ICT projects. Private tower companies (e.g., American Tower Company) manage over 6,500 shared sites. Despite progress, operators report persistent RoW challenges, including inflated fees, fibre vandalism, and land ownership disputes, underscoring the need for stronger enforcement.

3.1. LEARNINGS FROM THE BENCHMARKING STUDY VISIT

Four critical success factors emerge across all benchmarked countries:

- Centralised digital platforms (e.g., India's portal) drastically reduce approval delays and rent-seeking.
- legislative clarity, which includes standardised fees, deemed approvals, and "dig-once" mandates, mitigates local unpredictability.
- Infrastructure-sharing mechanisms (e.g., Ghana's co-location rules, the UK's open-access model) optimise costs and reduce duplication.

- Robust universal access funds (levy-financed in Ghana/Mauritius) and proactive dispute resolution (specialised tribunals in India, strict timelines in Ghana) prevent deployment bottlenecks.

These models provide actionable pathways for South Africa to address stakeholder-identified challenges, particularly in areas such as municipal coordination, wayleave inefficiencies, and rural connectivity gaps.

3.2. COMPARATIVE ANALYSIS

Category	India	Mauritius	United Kingdom	Ghana	South Africa
Primary Legislation and Sections	Telecommunications Act, 2023 (Chapter III: Sections 11–17 on RoW, deemed approvals, infrastructure distinct from land title).	ICT Act, 2001 (Section 27: Public operators' right to enter property/install infrastructure, subject to compensation).	Communications Act 2003 (Schedule 3A: Electronic Communications Code for statutory rights to install/share infrastructure).	- Electronic Communications Act, 2008 (Act 775) (Section 21: RoW on roads/public land; Section 81: Tower co-location mandate).	ECA, 2005 (Chapter 4: Access to networks/facilities; Section 43: Obligation to lease facilities).
Secondary Legislation	Telecommunications (RoW) Rules, 2024 (Centralised portal, dig-once policy).	Planned Building Guidelines (PB G7) (Mandatory technical standards for towers/fiber).	Electronic Communications Code (Conditions & Restrictions) Regulations 2016 .	Electronic Communications Regulations, 2011 (LI 1991) .	Municipal Systems Act, 2000 (Section 156: Municipal control over land).
	Critical Telecom Infrastructure Rules, 2024 .	USF Regulations, 2008 .	Telecoms Infrastructure Act 2021 (Court-imposed access).	NCA Tower Guidelines, 2020 (Co-location rules).	Draft Standard By-Laws (2023) (non-binding).
Institutional Arrangement	DoT (Policy implementation).	ICTA (Regulator).	Ofcom (Regulator).	NCA (Regulator).	ICASA (Regulator).
	TRAI (Regulation/disputes).	CEB (Pole attachments).	BDUK (Project Gigabit).	GIFEC (Universal access).	DCDT (Policy).
	TDSAT (Adjudication).	EDB (Smart cities).	DSIT (Strategy).	MMDAs (Local permits).	Municipalities (Fragmented wayleaves).
Implementing Agencies	BBNL (BharatNet).	Mauritius Telecom (FTTH rollout).	Openreach (Duct/pole sharing).	ATC/HTG (Tower companies).	SANRAL/Transnet (State-owned infrastructure).
	USOF (Digital Bharat Nidhi).	SLDC (Smart cities).	Local Planning Authorities .	WACS (Submarine cables).	SITA (SA Connect).
Universal Access Funding	USOF (1% operator levy) <ul style="list-style-type: none"> Funds BharatNet rural broadband 	USF (1% operator levy) <ul style="list-style-type: none"> Subsidises affordable broadband. 	Project Gigabit (£5B govt. fund) <ul style="list-style-type: none"> Targets hard-to-reach areas 	GIFEC (1% operator levy) <ul style="list-style-type: none"> Supports rural backbone/community ICT. 	USAASA (ECA mandate) <ul style="list-style-type: none"> Limited impact due to funding gaps.
Dispute Resolution	TDSAT (Specialised tribunal).	ICTA (Compensation adjudication).	Ofcom/OTA (Mediation).	NCA (5-day resolution).	ICASA (Limited jurisdiction).
	District Magistrate (RoW disputes).	Supreme Court (Appeals).	Courts (Impose access agreements).	Courts (Land disputes).	Voluntary process (Policy flaw).
Strengths	Centralised RoW portal with auto-approval.	Leverages power grid for fiber (OPGW).	Openreach duct/pole sharing.	Co-location mandates (300m radius).	ECA grants access rights.
	Strict timelines (67 days).	Cost-oriented pole fees.	Barrier Busting Taskforce.	GIFEC rural projects.	SA Connect policy framework.
	Dig-once policy.	Binding PBG7 standards.	ECC statutory rights.	90-day permit cap.	
Weaknesses	State-level fee variations persist.	No standalone RoW law.	Landowner resistance to ECC.	Fiber vandalism.	Non-binding bylaws.
	Landowner disputes are common.	Limited competition (Mauritius Telecom dominance).	Rural rollout delays.	Inflated RoW fees.	Municipal "cash cow" mentality.
				Land disputes.	No central RoW platform.

4. CONCLUSION

South Africa faces significant challenges in deploying electronic communications networks, including fragmented municipal approval processes, non-binding policies that lead to inconsistent implementation, restricted access to state-owned infrastructure due to high costs and bureaucracy, inadequate dispute resolution mechanisms, and persistent gaps in rural connectivity. These systemic issues result in prolonged timelines and inflated costs for network deployment, hindering the country's digital inclusion goals.

The report's recommendations directly target these challenges through an actionable solution modelled on international best practices. To address fragmented wayleave approvals, the proposal calls for a centralised digital platform that would standardise applications, fees, and approval timelines across municipalities, like India's successful GatiShaktiSanchar portal, which reduced processing times by 60%. For the problem of non-binding policies, the recommendation emphasises legislating enforceable rapid deployment regulations with clear timelines and penalties, mirroring the UK's approach under its Electronic Communications Code.

The issue of restricted access to state infrastructure would be mitigated by mandating cost-based access to government-owned ducts, poles, and servitudes, following Mauritius' example of leveraging existing power grid infrastructure through its CEB FiberNet initiative. To strengthen dispute resolution, the report suggests expanding ICASA's mandate to adjudicate conflicts between licensees and property owners/municipalities, drawing inspiration from Ghana's NCA, which resolves disputes within five days and India's specialised Telecom Disputes Settlement Appellate Tribunal.

For rural connectivity deficits, the recommendations propose restructuring the Universal Service and Access Fund (USAF) to better target underserved areas through public-private partnerships, like Ghana's GIFEC program, funded by a 1% operator levy. This would help bridge the digital divide in remote communities that commercial operators often overlook.

Implementation should follow a phased approach. In the short term (0-12 months), priority should be given to developing the centralised platform in partnership with COGTA and SALGA, drafting binding regulations with clear enforcement mechanisms, and issuing directives to state-owned entities like SANRAL and Eskom to publish transparent access terms. The medium term (1-3 years) should focus on establishing a dedicated dispute resolution tribunal under ICASA and reforming the USAF to improve rural connectivity projects. Long-term goals (3-5 years) include comprehensive legislative reform through amendment of the ECA and robust monitoring systems to track progress.

Success will depend on strong political commitment from key ministries, active collaboration with industry stakeholders, and adequate funding allocation, potentially through existing initiatives like Operation Vulindlela. By systematically implementing these recommendations, South Africa can realistically expect to reduce network deployment timelines by approximately 40%, bringing the country closer to achieving its SA Connect targets for universal broadband access and fostering inclusive digital economic growth.

5. Recommendations