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Development Sector

The revised SADC toolkit on universal access funding and universal service fund implementation

2024

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Foreword

In an era where digital transformation is reshaping economies, governance, and daily life, the imperative for inclusive and equitable access to digital infrastructure and services has never been greater. The Southern African Development Community (SADC) and its 16 member states stand at a pivotal moment – one where the promise of digitalization must be matched by deliberate and coordinated action to ensure that no one is left behind.

In 2011, the Communications Regulators' Association of Southern Africa (CRASA), working with ITU, came up with a pragmatic and practical guide to establishing, managing and financing universal access and service funds to enable them to achieve national universal service and access goals. The focus was principally on ensuring access, availability and affordability of voice but the 2011 Toolkit recognized that the convergence of technology was likely to require a change in thinking around universal access and service to include broadband services.

Today, digitalization is sweeping across all sectors of the economies in the region. Ensuring no one is left behind and achieving "universal meaningful connectivity" has inspired the review of the 2011 Toolkit to encompass approaches that are evidence-based and informed by the experiences and lessons learned from other countries. The 2024 Toolkit also aims to harmonize approaches across the region. Now, more than ever, encouraging cross-border initiatives that will also be valuable to create economies of scale and scope, to facilitate seamless communications among member states and between their citizens, and to encourage others to follow suit, to set an example of a successful regional communications initiative.

The revision of the toolkit follows the publication by CRASA of the third edition of the Universal Access and Service Guidelines for the Electronic Communication Sector in SADC in 2021 and the ITU Universal Service Financing Efficiency toolkit published in 2022. The review also takes note of universal and meaningful connectivity framework by the ITU.

The updated toolkit reflects ICT sector changes, such as the evolution of universal access/service and a wider scope of universal access funding that must now cover not only connectivity but also adoption, innovation, and inclusivity. It also addresses the different institutional and legal frameworks across CRASA Member States and the diverse roles and responsibilities of universal fund managers, as well as some of the challenges experienced by fund managers and how these could be addressed.

As we advance toward a more digitally inclusive SADC, this toolkit will serve as a strategic instrument for policy-makers, regulators, and stakeholders across the region. It offers not only a guide, but a platform for harmonized action—enabling the region to unlock the full potential of digitalization and build resilient, inclusive, and sustainable digital economies.

Dr Cosmas Luckyson Zavazava
Director of the Telecommunication Development Bureau
International Telecommunication Union

Summary

In 2011, working with the Communications Regulators' Association of Southern Africa (CRASA),[1] the International Telecommunication Union (ITU) in cooperation with the European Commission (EC) published a toolkit on universal access funding and universal service implementation to provide guidance on how to establish, manage and ensure good governance of universal access and service funds. It also offered advice on sources of traditional and new financing mechanisms with relevant good practices and country experiences.

The digital transformation process sweeping across various sectors is now calling for a rethink and a review of policies for extending universal access and services. Universal access today goes beyond merely extending networks to addressing the use of those networks and framing broadband as a key enabler of digitalisation. Likewise, universal service must now also include quality of service and affordability.

Over the past decade, countries have taken different approaches to universal access and service funding. Ongoing, and in some cases worsened, socio-economic conditions have meant bridging the digital divide is more difficult – the Covid-19 pandemic, systemic poverty and global political uncertainty have all taken a toll.

By the end of 2023, of the 14 CRASA Member States, all part of the Southern African Development Community known as "SADC", 11 had reported having operational access and service funds. In these countries, laws have been passed establishing funds and setting out specific mandates, the scope of funding, eligible beneficiaries and the governance frameworks for fund operations.

The toolkit has been updated to reflect ICT sector changes, such as the evolution of universal access and service, and a wider scope of universal access funding that now covers not only connectivity but also adoption, innovation, and inclusivity. The revised SADC toolkit also addresses the different institutional and legal setups across CRASA Member States and the diverse roles and responsibilities of fund managers. Some of the challenges experienced by fund managers and how these could be addressed are also considered.

[1] CRASA | About

Glossary

A4IC	Alliance for Internet Connectivity
ARPTC	Autorité de Régulation de la Poste et des Télécommunications du Congo
BOCRA	Botswana Communication Regulatory Authority
Broadband Commission	ITU/UNESCO Broadband Commission for Sustainable Development
BTA	Botswana Telecommunications Authority
Capex	capital expenditure
CRAN	Communications Regulatory Authority of Namibia
CRASA	Communications Regulatory Association of Southern Africa
DFI	development finance institutions
EU	European Union
FCC	Federal Communications Commission
Guidelines	Universal Access and Service Guidelines for the Electronic Communications Sector in SADC, 2021
ICASA	Independent Communications Authority of South Africa
ICT/s	Information and Communications Technology/ies
ICTA	Information and Communication Technologies Authority (Mauritius)
INACOM	Instituto Angolano das Communicacoes (Angola)
INCM	Instituto Nacional das Communicacoes de Mocambique (Mozambique)
ISP	Internet service provider
ITU	International Telecommunication Union
LCA	Lesotho Communications Authority
MACRA	Malawi Communications Regulatory Authority
NGO	Non-governmental organization
Node	redistribution point or communication endpoint in a telecommunication network
PoP	point of presence
POTRAZ	Postal and Telecommunications Regulatory Authority of Zimbabwe
PPP	public private partnership
QoS	quality of service
SADC	Southern Africa Development Community

(continued)

SME/SMMEs	small and medium enterprises
TCRA	Tanzania Communications Regulatory Authority
UCC	Uganda Communications Commission
UCUSAF	Uganda Communications Universal Service and Access Fund
UA	universal access
UAS	universal access and service
UMC	universal and meaningful connectivity framework
UNDP	United Nations Development Programme
US	universal service
USF	universal service fund
USAASA	Universal Service and Access Agency of South Africa
USAF	universal service and access fund
USO	universal service obligation
ZICTA	Zambia Information and Communications Technology Authority
4IR	fourth industrial revolution

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1 Introduction to the revised SADC toolkit

1.1 What is the Toolkit?

The SADC Toolkit on Universal Access Funding and Universal Service Fund Implementation[1] was first published in 2011 for the benefit of the members of the Southern African Development Community (SADC)[2]. The 2011 toolkit sought to provide a pragmatic and practical guide to establishing, managing and financing universal access and service funds (UAS funds)[3] and selecting and implementing projects in order to achieve national universal service and access goals. The toolkit also recognized the numerous legal, political, social and economic challenges that SADC Member States might have been facing at that time, and the challenges in implementation, management and financing of UAS funds and projects that were specific to the region. The focus was principally on ensuring access, availability and affordability of voice but the toolkit recognized that the convergence of technology was likely to require a change in thinking around universal access and service to include broadband services.

Today, digitalization is sweeping across all sectors of the economy. Ensuring no one is left behind and achieving "universal meaningful connectivity" has required a review of the 2011 toolkit to encompass approaches that are evidence-based and informed by the experiences and lessons learned from other countries. The 2024 version (revised SADC toolkit) also aims to harmonize approaches across the region. This will contribute, to the extent possible, to each country considering an approach based on best practices. Now, more than ever, encouraging cross-border initiatives will also be valuable to create economies of scale and scope, thus reducing costs; to facilitate seamless communications among Member States and between their citizens, and their neighbours; and to encourage other regions to follow suit, perhaps to set an example of a successful regional communications initiative.

The revised SADC toolkit is neither a legal nor a binding document. It continues to serve as a guide to the establishment, management and financing of UAS funds, particularly for fund administrators and managers within the SADC Member States, for the identification and funding of projects. It has been produced with the assistance from ITU and support of CRASA, which represents all the regulatory authorities in the region.

1.2 Why has the toolkit been revised?

The revision of the toolkit follows the publication of the third edition of the Universal Access and Service Guidelines for the Electronic Communications Sector in SADC[4] by CRASA in 2021 (the Guidelines) and the publication and training on the ITU Universal Service Financing Efficiency Toolkit in 2022[5].

- The CRASA Guidelines states that "Ensuring affordable access to information and communications for everyone is a key enabler to improve the quality of lives and livelihoods

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1 https://www.crasa.org/post-articles/toolkit-on-universal-access-funding-and-usf-implementation

2 In 2011, the SADC membership included: Angola, Botswana, Comoros, Democratic Republic of the Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia, South Africa, eSwatini (Swaziland), Tanzania, Zambia, and Zimbabwe. Today, there are 16 members of the broader SADC region, see Figure 2.

3 Funds are referred to in different countries by various names such as Universal Access and Service Fund (UASF or UAS fund), Universal Service and Access Fund (USAF), Universal Service Fund (USF), Universal Service Obligation (USO)

4 Microsoft Word - 2021 UNIVERSAL SERVICE AND ACCESS GUIDELINES .docx (website-files.com)

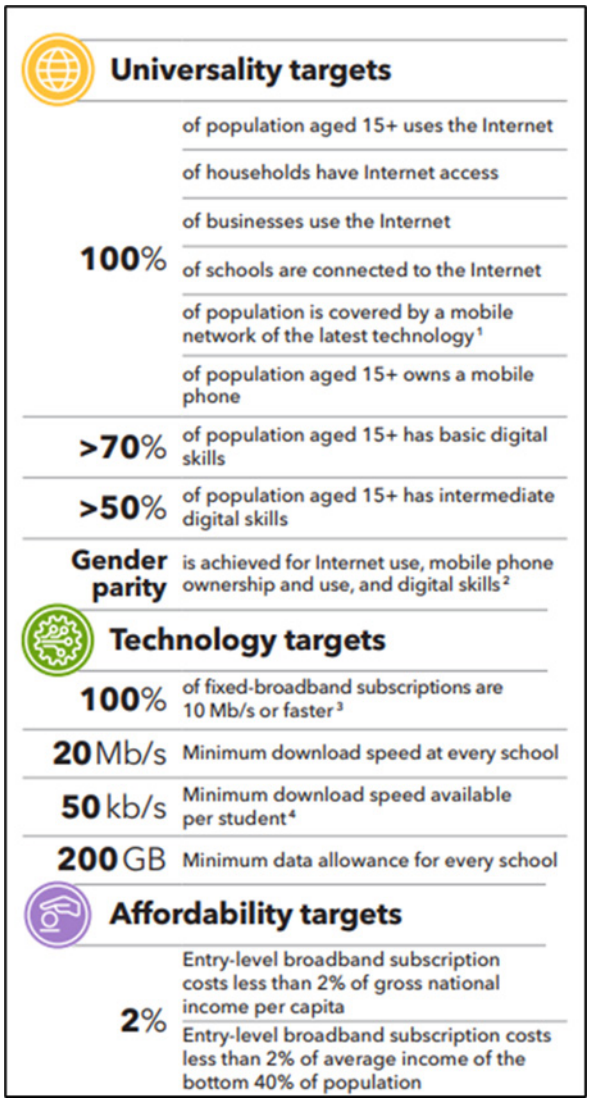
5 https://www.itu.int/itu-d/reports/regulatory-market/2022/01/31/introduction/

through facilitating social and economic development, by providing opportunities for learning and digital health; for the acquiring and sharing of information and knowledge; for entrepreneurship and commercial activities; and security and governance. Widespread and affordable access to ICTs is also a key to promoting social inclusion, and to bringing the benefits of development to the marginalised and disadvantaged members of the societies, including the poor, unemployed, women and disabled."

- The revised SADC toolkit also draws on the ITU Universal Service Financing Efficiency Toolkit, which helps to navigate the multitude of business models that need financial support in order to have a local, municipal and national impact and meet the 2030 SDGs and targets related to and facilitated by digitalization.

Both resources seek to provide concrete solutions for greater efficiency in fund management based on key trends which have been referenced in the revised SADC toolkit. To ensure that SADC is not left behind, the toolkit further takes into account the universal and meaningful connectivity (UMC) framework developed by ITU and the Office of the UN Secretary-General's Envoy on Technology (now, the UN Office for Digital and Emerging Technologies) and their partners, that includes efforts to establish a baseline of digital connectivity that individuals need in order to access online services, as well as a definition of "affordability", including targets and metrics, as shown in Figure 1 below.

Figure 1: Aspirational targets for 2030



Source: www.itu.int/umc2030

The revised SADC toolkit was also prepared based on the findings that followed a gap analysis and a series of interviews with representatives of CRASA Member States including fund managers and regulatory authorities, in 2023. Country case studies on the Democratic Republic of the Congo, Mozambique, Namibia, South Africa, and Zimbabwe were carried out and are incorporated in different sections of this revised toolkit, providing further insights.

1.3 Who is the revised SADC toolkit for?

The revised SADC toolkit is primarily a resource for regulators and UAS fund administrators in the SADC region, but it is also relevant to policy-makers and legislators. To a significant degree, the suggested approach in 2011 still applies, but with updated case studies, additional checklists and recommendations. While the interviews and case studies were undertaken with CRASA Member States, the toolkit may benefit the 16 members of the broader SADC region, shown in Figure 2, noting that there is no one-size-fits-all or single way to achieve universal access or universal service.

Figure 2: Countries within the SADC region

Source: Member States | SADC

2 The context for universal service and access in the SADC region

2.1 Acknowledging the issues

Establishing and managing a universal access or universal service fund has long been considered to be an appropriate and pro-active way to ensure that connectivity, whether voice or broadband or both, is enabled in rural areas or areas that may be difficult to cover because of cost, geographical, or security issues. These areas are described as unserved or underserved – areas where operators do not consider that the cost or risk of deploying network infrastructure and providing services justify the return on investment. The cost of providing connectivity for example, grows exponentially in locations without power or roads.

There have been few examples of successful universal access or universal service funds in the SADC region, and it may be that these funds are not always the only answer. Funds – where they have been established – are attempting to navigate a complicated landscape of legislation and policy, profit motives and commercial imperatives, and a regulatory framework that may not always be supportive of the goals of a UAS fund. Socio-economic factors influencing the value of local currencies, government priorities, and licensee perceptions of need, also affect the decision to establish a fund, the level of resource available, and – quite likely – the success of any projects or the fund itself. In some instances, a tug of war over the management and use of the fund is not unusual. Because funds are in most cases creations of law and policy, their authority is confined to choosing projects and disbursing what money they have available, and they are answerable to either a regulatory authority, a ministry, or central government.

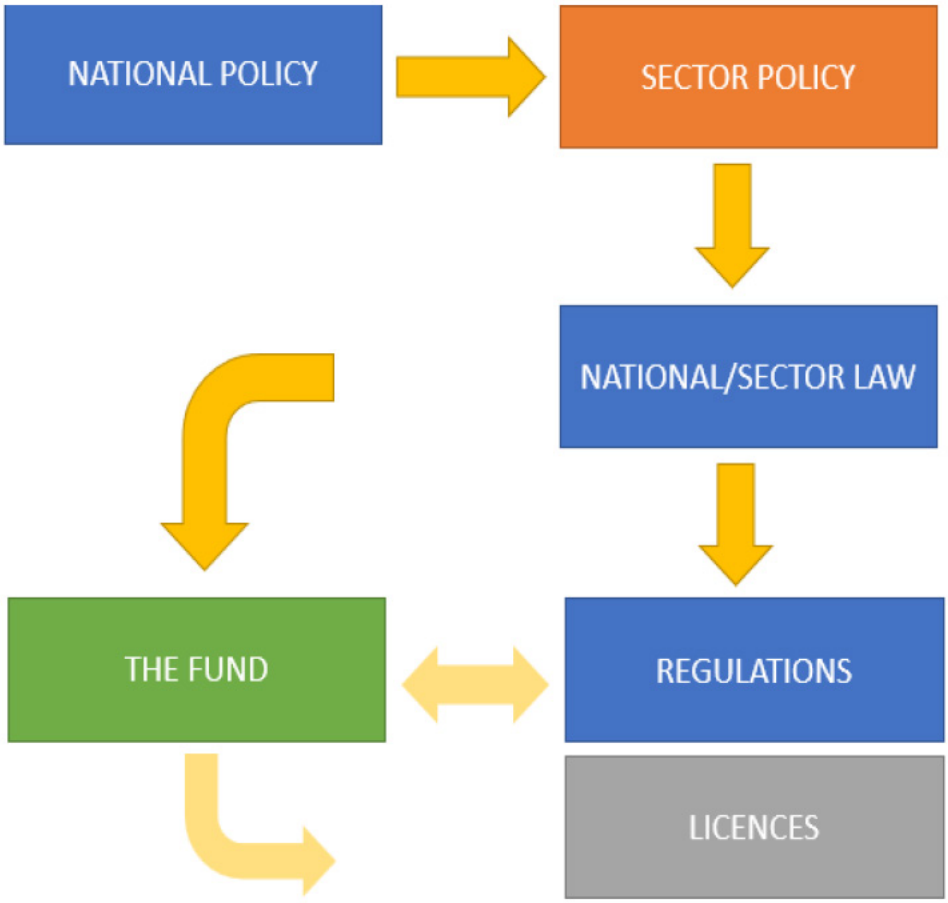
The sometimes, limited capacities and resources to address the myriad of issues increases project risk and is likely to limit return on investment – perpetuating what has become a vicious circle. However, despite these issues, the motive for creating funds remains valid and if well-structured and managed, they can make a significant contribution to connecting the unconnected.

2.2 Legal frameworks and challenges

Funds do not exist in a policy, regulatory, legal and institutional vacuum. It is usually the case that national or sector-specific information and communication technologies policies set out national commitments to global or regional goals relating to universal access and services as well as those that are more specific to the country. Policies tend to be high level documents and contain key elements that need to be captured in sector or primary national law to be given effect to by the responsible parties.

Implementation may take various forms but is usually also preceded by or stipulated in regulations, directions, guidelines, orders, notices and decrees prepared by authorized agencies such as regulatory authorities, or, depending on the laws, these may fall within the mandate of government ministers instead. These instruments are known as subsidiary legislation. A typical framework is set out in Figure 3.

Figure 3: A typical framework for the creation of a USF



Source: ITU

As the diagram indicates, the fund is a creation of the framework. In some countries it may be administered by a standalone entity working alongside regulatory authorities. In other countries, fund managers are located within the regulatory authority. Section 3 of this revised toolkit describes the structure of funds.

The checklist in Figure 4 summarizes important elements of national policy, law and regulations that form the basis of a sound framework for the establishment of a fund and Table 1 describes the more specific type of provisions that could be included at each level.

Figure 4: Legal framework checklist

Sound policy supporting the creation of a mechanism for universal access and service funding as a general concept, will have the following elements:

- Commitment at government level (usually as a national policy dedicated to connectivity or digital transformation) to current global policy goals such as the Sustainable Development Goals (SDGs) with the necessary prioritization to take account of country-specific issues.
- A sector policy that:
    - recognizes that without a legal framework in place, ensuring universal access and service (and particularly, broadband connectivity) is unlikely to happen on its own;
    - acknowledges the need for a dedicated agency or unit within the regulatory authority to drive the attainment of national goals;
    - makes a commitment to funding, loans, or other support for this agency and the attainment of national goals.
- National law that:
    - empowers a specific entity to collect a specified levy to fund a specified mechanism for identified purposes; and/or
    - creates a licensing framework that contains legal obligations on licensees to achieve a level of coverage or penetration or both, that meets national targets; and/or
    - obliges or permits frequent review of targets and mechanisms to achieve them, and allows change where necessary to improve or take account of current needs.
- Secondary instruments intended to:
    - assist in implementation e.g. broadband connectivity targets for a fixed period for specific institutions e.g. schools and health centres;
    - provide for feedback at a national level on a regular basis in the form of a review or report, and a commitment to addressing any shortfall or delay;
    - set and provide for monitoring quality of service obligations.

Source: Adapted from the 2011 Toolkit.

Table 1: Examples of provisions within the legal framework

Policy goal	Legislative provision giving effect to the policy goal	Subsidiary legislation for implementation
To ensure universal access to broadband networks and services	The regulatory authority may determine the services forming part of universal access, and impose obligations on licensees in relation to those services.	Every individual licensee shall: (a) comply with the rollout and coverage requirements in Schedule A to this regulation, in the provision of voice and broadband services; (b) comply with the service quality and service speeds set out in Schedule B to this regulation in the deployment of voice and broadband services; and (c) submit a quarterly report to the regulatory authority detailing, in the form set out in Schedule C, progress made according to the timetable attached as Schedule D.
To promote the development of digital content including education content	The Minister of ICT shall: (a) liaise with the Minister of Education in the creation of suitable content for use by educational institutions; and (b) direct the regulatory authority to take such actions as are appropriate and proportionate to require licensees to assist in the delivery of the agreed content to the nominated beneficiaries.	The regulatory authority shall: (a) issue an invitation to apply stating its intention to award a project subsidy for the delivery of approved content to the nominated beneficiaries; (b) identify the area where the project subsidy will be awarded, the evaluation criteria for applications, and the closing date by which applications to be made; (c) select the application that meets the criteria within 30 days of the closing date; and (d) award the project subsidy to the successful applicant within no more than 90 days of the closing date.

Source: Research and case studies

While to date almost every Member State within CRASA (except the Comoros) has established a fund, there are some countries where the fund is not operational (Democratic Republic of the Congo, and Namibia). There are other countries in which the administration of monies collected from licensees and other sources to fund universal service and access has been appropriated by central government and in some cases, used for purposes other than connecting the unconnected, contrary to the legal purpose.

The legal framework can also hinder efficient use of funds by:

- imposing unnecessary reporting or procurement obligations on fund which frustrate or delay project execution or the collection of levies and other funding;

- frustrating the fund managers in the execution of their mandate by diverting monies to connectivity projects that are not scheduled at all or not scheduled at that time; or
- not being clear.

Table 2 illustrates issues faced by some CRASA Member States due to the unintended complexities and effects of legal frameworks.

Table 2: The unexpected and sometimes unintended complexities and effects of legal frameworks

Legal issues	Country	Consequence
Unclear or vague provisions concerning the source and allocation of levies in primary law	Democratic Republic of the Congo, Namibia	The government role is still under consideration which has prevented the fund from becoming operational (Democratic Republic of the Congo); litigation by licensees has prevented the fund from identifying projects or disbursing funds (Namibia)
Unclear or vague provisions about the identity of the collecting and managing agent	Angola, Lesotho	Government disburses funds to the state-owned operator (Angola); dispute between the fund and regulatory authority regarding authority over the fund (Lesotho)
Lengthy, complex, procurement procedures for disbursing funds	Malawi, Zimbabwe	Project implementation is delayed or stranded (Malawi, Zimbabwe)
Primary law dictates how the fund should be established, be managed, select projects and disburse funds	Lesotho, Mozambique, Namibia, South Africa	There is not much room for discretion or innovation, and best practice or international trends cannot be considered (all)
Changing the law or introducing new law or even regulation	Comoros, Lesotho Mauritius	This takes a long time and can be subject to public comment and disputes about the structure and powers of the fund manager

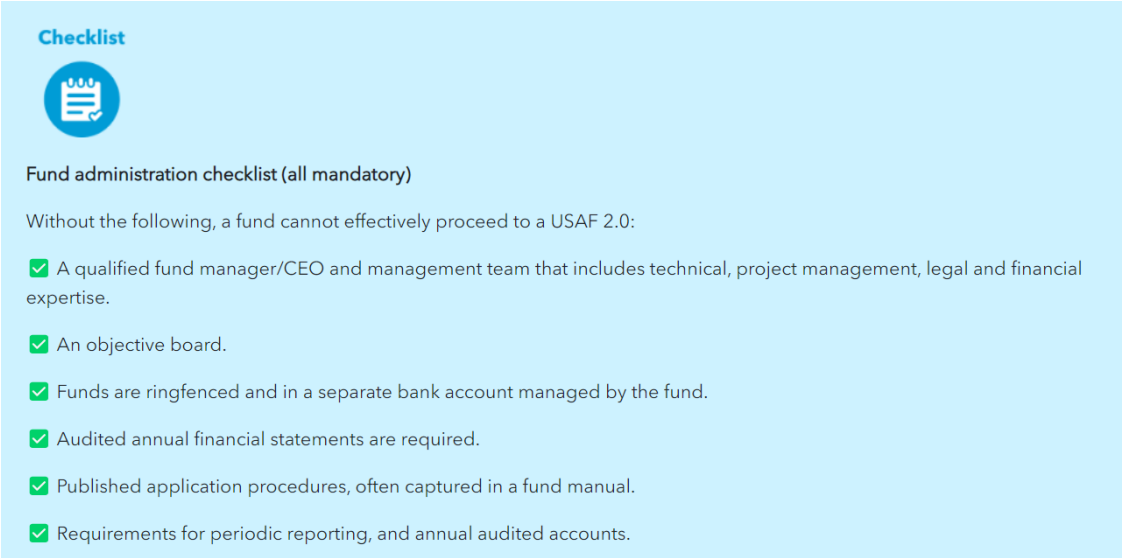
Source: Country representative interviews and desktop research

2.3 Reviewing funds

Where a fund has been created, it is good practice to review progress on a regular basis to assess achievements and take stock of changes needed. Where progress has been made in achieving universal and meaningful connectivity, this can incentivize funds (and governments) to remain consistent, or, if necessary, to review their approach only in areas where progress has been more limited, or to audit the factors affecting the progress that might otherwise be made.

A review should start with the establishment and structure of the fund. The checklist in Figure 5 may assist.

Figure 5: Checklist for fund administration



Source: Policy and Regulation (itu.int)

2.4 Global experience and good practices

This revised toolkit provides guidance to review and assess funds, enhance efficiency, assess operational wellbeing, and offers insights into good practices. Accountability and transparency are two areas that are critical to an operational-efficiency assessment.

Accountability

Accountability requires that the fund be responsible to all external stakeholders for the manner in which it has conducted its business for a given period. The following tools can be used to ensure accountability:

- **Separate accounting** – the fund (or donor, NGO or public financing body) should recognize that the monies it collects are for a designated purpose and from a range of sources and as such, regardless of the institutional framework, must ensure that it has its own bank accounts and associated accounting procedures. The fund's operating budget should be separate; as should its accounting for project-related costs. The necessary financial controls should be put in place to ensure accountability.
- **Operating procedures** – the fund (or donor, NGO or other public financing body) must develop a manual of operating procedures that sets out specific rules with respect to critical issues such as procurement, accounting standards, project selection criteria, technical partner selection criteria, tendering processes and procedures, and disbursement procedures or participation rules in the case of a public private partnership (PPP).
- **Governance framework** – there must be a clear governance framework. In the case of a fund, in many countries the rules relating to governance are set out in existing legislation, and also in the manual of operating procedures. While this is an option, it is also important to keep a governance manual as a separate document. A governance manual includes issues such as the general constitution, role and functions of the fund, the role of the board, executives and staff, the management of finances and reporting requirements.
- **Annual report** – An annual report must be published, accounting for monies spent and setting out fund activities, levies collected, disbursements and any other key issues that affected the fund in a given year. Based on an analysis of websites of CRASA members, only one of the funds (South Africa) has made annual reports publicly available.

- **On-going reporting** – periodic reports must be provided to the relevant stakeholders, including the communities, with respect to the monitoring, evaluation and impact of the projects that are being undertaken. This will ensure both accountability and stakeholder and community awareness.
- **Annual auditing** – the funds and their accounts should be independently audited on an annual basis, and the audit results should be made public. Similarly, in the case of a specific project, the recipient of the public financing (whether from a fund or other source) must provide an audited report regularly on its progress and performance.

Transparency and trust

It is important that all public and private stakeholders have confidence in the fund and its management team to deliver on its mandate in a manner that is fair, procedurally sound and transparent. Transparency and trust can be encouraged by documenting all processes in a clear manner. A further document that should be prepared to promote transparency is a manual or handbook for recipients of subsidies from the fund, or any public financing. Box 1 sets out some of the topics that such a manual might cover.

Box 1: Guidelines for recipients of funding

1. Summary of the contract terms including start and finish dates, dates of deliverables, and payment dates.
2. Description of recipient responsibilities.
3. Environmental impact assessment requirements (if any).
4. Public consultation responsibilities (if any).
5. Reporting responsibilities including holding of update meetings on-site and remotely.
6. Standards (technical and service-related).
7. Retention fund and enforcement triggers.
8. Completion and handover process.
9. Monitoring and evaluation.
10. Other (e.g. media liaison, community liaison, liaison with government).

Efficiency

Efficiency is a key characteristic of management of fund if they are to be effective. This requires at a minimum:

- understanding of the environment and responsiveness;
- management autonomy;
- sufficient financial resources;
- adequate human resources and capacity;
- enforcement and dispute resolution powers;
- evaluation mechanisms.

An inefficient fund can be too slow in implementing projects, in which case the steps taken may be inappropriate, too late, or too expensive, amongst other things. This is a serious risk in a sector that is as fast-paced as the ICT sector as technologies could be obsolete or outdated by the time they reach the target community if there is any delay.

Mature funds (many have been in existence since the late 1990s) that have collected monies well in excess of their capacity to organize competitive bidding processes and allocate subsidies are now a global phenomenon. In addition to inefficiency, this is also cited as evidence that there is over-collection because contributions are often fixed and sector revenues are increasing. This can also be construed as evidence of miscalculation of the country's needs. The risk of this occurring, and the reality that it has happened in the region and elsewhere, makes it critical to re-emphasize the importance of the evaluation processes, which should include the re-assessment of the levy/contribution required and the assessment of the impact of the fund from time to time. This is addressed in more detail in section 7.

Table 3 gives an example of the steps to be taken in a review for the period, for example, between 2024 and 2030.

Table 3: Life cycle of a fund

Activity	2025	2026	2027	2028	2029
Institutional framework Review policies, laws and regulations for ICT sector that are specific to UAS and Funds to identify any gaps/obstacles to achieving the UAS mandate; make changes if possible to laws, otherwise to regulations, guidelines, or licences, as required					
Institutional competence Assess structure of unit or agency as the case may be, assess skills of dedicated resources, appoint additional resources where required					
Review the baseline for UAS Review gaps against a preferred matrix e.g. ITU, Broadband Commission or UN 'universal and meaningful connectivity' framework					
Set targets for an approved period Various alternatives including aspirational goals to be achieved progressively over the period					
Calculate the budget/contribution Assess within the approved period, taking operational Fund costs into account					
Assess sources of funding In addition to licensee levies and any regulatory budget contributions on an annual basis, review other options					
Implement identified projects, review, monitor, report, account This is a critical but complex action and can only be split into sub-tasks when the preceding actions are completed					
Taking the results into account, reframe or adjust the programme for the following year					

Source: Adapted from the 2011 Toolkit

A more detailed review with a view to qualitatively assessing its progress is described in the 6-step process in Figure 6.

Figure 6: Steps to review funds

Source: ITU 2021 report on financing universal access to digital technologies and services

The answers to the questions posed in each of these steps may reveal much about the role, relevance and positioning of funds. This assessment is likely to uncover which funds have functioned effectively, and those which can be considered to be ineffective. Following these steps can assist in identifying an approach to take to evolve operational funds into 'USAF 2.0' (universal service and access fund (USAF))[6], or, in the case of low-disbursing or non-functioning funds, reveal that the fund has outlived its relevance.

[6] https://www.itu.int/dms_pub/itu-d/opb/pref/D-PREF-EF-2021-ECO_FIN-PDF-E.pdf

3 Universal access and service funds

Like many public sector organizations, there is no ideal size for a fund, however there are a number of strategies that fund managers could use to fulfil the universal service and access strategy, improve cost and operational efficiency. Some approaches are more onerous than others, and to choose the most appropriate, the management entity should have a clear understanding of its objectives and mandate, and the outcome it wishes to achieve.

The implementation of a system to measure performance from the start of the fund is highly recommended as it assists in ensuring that the mandate can be carried out and that organizational risk is managed.

3.1 Establishing a fund

SADC Member States commit to extending access and developing ICT in "rural and remote areas, underprivileged areas, institutions of learning and other communities" in the Declaration on Information and Communications Technologies captured in **Table 4**. All of the Member States have ICT sector policy and legislation in force. The CRASA Member States are at varying levels of liberalization but have in almost all cases established a fund with the exception of the Comoros, which only joined CRASA recently and does not have fund-specific laws in place. The SADC Member States' commitments in relation to ICT are relevant to the consideration of universal access and service.

Table 4: The SADC commitment to ICT

The Declaration On Information and Communication Technologies
The Declaration on Information and Communication Technologies established a coherent policy on information and communication technologies for SADC's Member States as they endeavour to bridge the digital divide between Southern Africa and the rest of the world. Along with advocating an improved regulatory environment and encouraging community participation in development of information and communication technologies, the Declaration on Information and Communication Technologies also specifically highlights the importance of technological infrastructure in advancing the sector and urges Member States to give special note to rural and remote areas, underprivileged urban areas, institutions of learning, and other communities of special benefit to the region when deploying this future infrastructure.

Source: Declaration_on_Information_and_Communication_Technology2001.pdf

The CRASA Universal Service and Access Guidelines (CRASA Guidelines) aim to provide a model for universal service and access policies for members in the region, and to promote good governance. The CRASA Guidelines also anticipate the creation of a fund by each Member State, preferably through the regulator, but in terms of a law that clearly identifies who is responsible for the management and operation of the fund and ensures the independence of this entity through clear regulatory provisions.[7] This is a typical construction and is used in most countries in the world and in Africa, as shown in Box 2.

[7] Section 6 of the Guidelines.

Box 2: Uganda Communications Universal Service and Access Fund (UCUSAF)

In Uganda, the Rural Communications Development Fund (RCDF) now known as the Uganda Communications Universal Service and Access Fund (UCUSAF) was established in 2001 by the regulatory authority, the Uganda Communications Commission (UCC), under the Uganda Communications Act of 1997. The Act obliges UCC to create and manage a fund dedicated to the development of rural communications and information and communication technology within the country.[1] UCUSAF operates as a semi-autonomous entity, but it functions as a department within the UCC.

The UCUSAF IV strategy seeks to achieve "Digital Inclusivity through sustainable interventions and impactful collaborations" and according to its website, it has adopted four strategic themes: Access, Adoption and Usage, Value Creation, and Cooperation. These themes are supported by five strategic objectives, intended to create:

- increased broadband access;
- enhanced usage of digital devices and services;
- promotion of ICT applications and services;
- facilitating knowledge and informative decision-making;
- enhanced multi-sector collaboration.

[1] UCUSAF – Uganda Communications Commission (ucc.co.ug)

Other than in Angola, South Africa, and Tanzania (and in Lesotho where there is a separate committee), UAS funds are units that exist within the regulatory authority, rather than as separate entities. This can lead to disputes regarding the split of funds as it has in Namibia and the Dem. Rep. of the Congo, but it also dilutes the resources available to manage the fund, reduces the ability to find sources of finance other than through licensee levies, and also to select projects or devise tenders for specific targets, and manage the resulting projects. In Botswana, Eswatini, Malawi, Namibia, and Zimbabwe, staff of the regulatory authority have split functions, i.e. they have their regulatory work, and their work in relation to the execution of the fund mandate.

This is obviously a factor to consider when measuring the productivity of the fund, although significant progress has been made in many of these countries, despite the resource constraints, as can be seen in Eswatini's case, in Box 3.

Box 3: Managing the fund in Eswatini

Eswatini manages the resource constraints by keeping very focused on the project scope and their targets. The UASF develops a three-year strategy that targets a particular set of goals, such as broadband, but within that strategy there are annual plans that deal with sector-specific issues – they are not project based. Any project they decide to fund must be within the strategy's over-arching topics and the annual plans. When government directs the fund to assist with a project, for example connecting a school or improving e-government services, the plan must have envisaged addressing those topics. If a government request falls within a sector, then they may consider it, provided it fits within the annual budget. If it does not, they decline the project or put it into the next draft strategy.

This revised toolkit focuses on the other practical aspects of establishing and managing a fund in the sections that follow.

3.2 Staffing and structure

Wherever the fund is located, i.e. in the ministry, regulator, or independent agency, it should ideally have its own dedicated team consisting of, at least, the following positions:

- full-time fund administrator/CEO;
- board of trustees or board of directors;
- financial manager;
- programme manager;
- project manager (with capabilities for monitoring and evaluation);
- inspector and auditor.

However, this is not always possible given the cost and administrative burden, and in many countries where the regulator is responsible for the fund, resources are shared. However, Member States must commit adequate human resources whether these are within a separate agency or shared with the regulator. These resources are likely to require skills relating to areas of activity as diverse as:

- determining service types and levels (e.g. legal, economics, policy);
- calculating reasonable costs of provision (e.g. economics and finance);
- deciding eligibility for funding (e.g. legal, policy, project finance);
- managing competitive tender processes for provision (e.g. legal, financial, technical, market research, market analysis);
- drafting contracts and determining the liability of stakeholders (e.g. legal).

The structure of the fund in Zimbabwe is shown in Box 4.

Box 4: Zimbabwe Universal Service Fund

The Universal Service Fund in Zimbabwe was established by the Postal and Telecommunications Act. The Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ) is responsible for collecting funds from licensees and has oversight of the fund through the finance department, although funds are theoretically kept separate. Banking, investment, accounting, and facilitation of auditing of the fund accounts is undertaken by the Comptroller and Auditor General in accordance with the provision of the Act. The fund has its own Board of Trustees and is managed by a Director in charge of the fund (for communications as well as postal service funds) and a Deputy-Director, while a project manager is in charge of overseeing all projects. Costs associated with any work done by anyone within POTRAZ for the fund are covered by POTRAZ, except for a few who are paid directly by the fund.

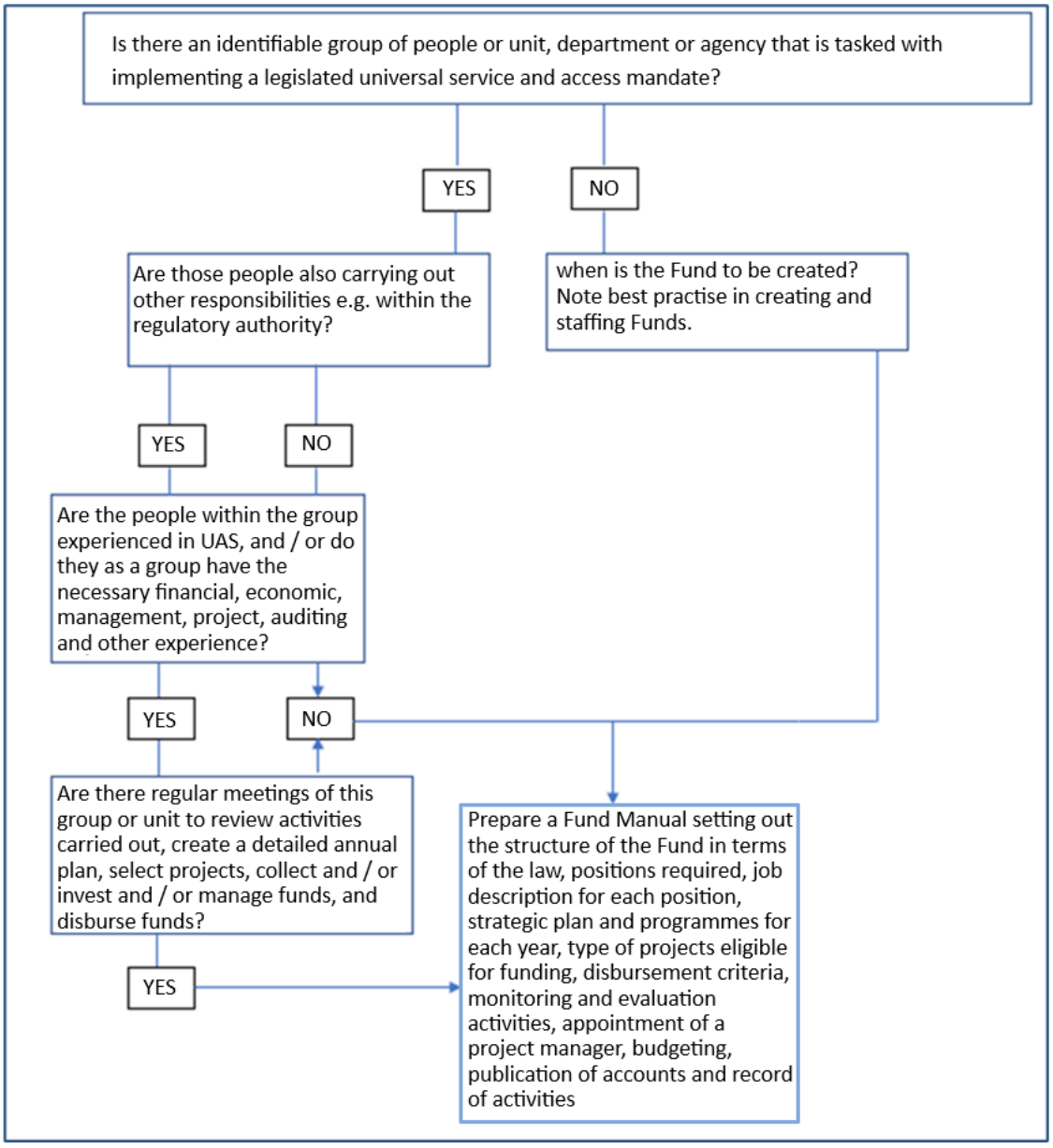
Regardless of the institutional location of universal service fund administration, the entity in charge of managing the fund and its operations should have clearly defined rules, principles and guidelines. Good governance principles are the cornerstone of the success of universal service fund administration. Institutional arrangements for universal service fund administration should emphasise the importance of accountability, transparency, efficiency, and independence, which are fundamental for effective administration.[8] These topics should be covered in a fund manual, and the manual should be updated following a review. Eswatini offers a good example of a fund manual[9].

When reviewing the operation of a fund, there are some questions that can be asked by the fund to establish whether or not it is adequately staffed and what the staff of the fund should be expected to be capable of – are key roles filled by staff who are experienced for example? Other examples of questions to be asked of an existing fund (whether it be a unit, agency, department or other group within a regulatory authority) are set out in Figure 7.

[8] https://doi.org/10.26686/wgtn.17005120.v1

[9] Universal Service Operating Manual https://www.esccom.org.sz/universalservice/_Universal_Service_Operational_Manual.pdf

Figure 7: Review of fund staffing arrangements



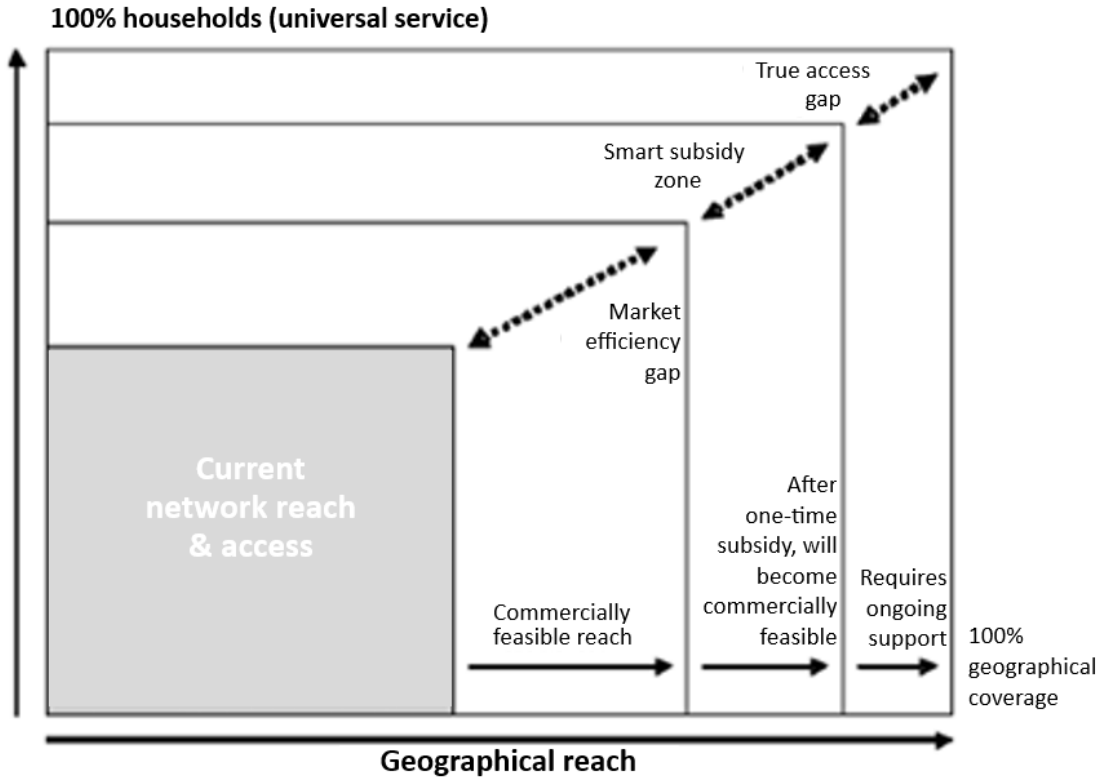
Source: ITU

4 Revising or setting targets

4.1 Assessing the gaps

The 2011 Toolkit describes the market efficiency gap (where network reach is commercially feasible even if it has not been achieved), the smart subsidy zone gap, and the true access gap. The latter two gaps describe the point at which policy interventions and market reform and regulatory measures (i.e. non-financial measures) have not resulted in affordable and accessible networks and services. The true access gap can be depicted graphically as shown in Figure 8.

Figure 8: The "true access gap"

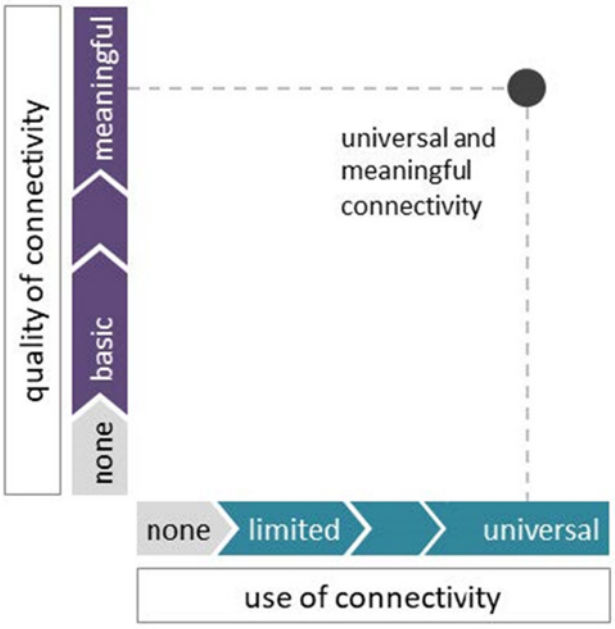


Source: 2011 Toolkit

Whilst these gaps are still present in many countries, the current focus is also on targets for achieving universal and meaningful connectivity (UMC) in support of the United Nations' commitment to ensure that every person has safe and affordable access to the Internet by 2030, including meaningful use of digitally enabled services in line with the SDGs[10]. Figure 9 depicts the elements for connectivity that constitute UMC.

[10] Universal_Connectivity_Summary_PDF.pdf and UniversalMeaningfulDigitalConnectivityTargets2030_BackgroundPaper.pdf (itu.int)

Figure 9: The two dimensions of connectivity



Source: Universal Meaningful Digital Connectivity Targets 2030_BackgroundPaper.pdf (itu.int)

In whatever manner the gaps are defined, the intention is to identify them with a view to closing them and to do so using targets and goals set by national policy, through the legal mandate and duties of a fund, among other things. For example, Uganda is setting its connectivity targets and linking them to the SDGs described in Box 5.

Box 5: Uganda Communications Universal Service and Access Fund

The UCUSAF Internet connectivity programme[1] is intended to promote research-based learning, provide timely access to diverse information and knowledge, and enhance interactive teaching and learning experiences. Additionally, UCUSAF aims to take affirmative action to bring down the cost of Internet for educational institutions and to support customs, e-government services, and provide Internet access to unserved border communities.

This aligns with the SDGs related to:

- quality education (SDG 4);
- industry, innovation, and infrastructure (SDG 9);
- peace, justice, and strong institutions (SDG 16).

[1] Internet Connectivity Program – Uganda Communications Commission (ucc.co.ug)

These targets indicate that gaps in Uganda are related to use and cost of the Internet specifically in relation to education and e-government services having regard to the SDGs 2030, but they also confirm that it is important to facilitate universal access to the Internet in unserved areas.

The ITU Data Hub[11] offers up to date information on various indicators of universal and meaningful connectivity. When combined with the inputs of CRASA Member States, the available data suggests that coverage by and therefore access to voice and broadband services in the SADC region, if measured according to the graph in Figure 4, is very limited – either at none, basic, or limited, although Mauritius has made impressive progress in providing ubiquitous voice and broadband coverage. Mauritius' next goal, through the fund, is to improve the quality of service including speed of broadband across the country. This can be contrasted with the position in Comoros, shown in Box 6.

Box 6: Coverage and access in Comoros

Comoros is an archipelago of three major islands, Grand Comore, Moheli, and Anjouan, with a total population of about 830 000, situated off the coast of Mozambique in the Indian Ocean. Comoros has only recently joined CRASA. In Comoros, a new law is being drafted in terms of which a fund for the purpose of addressing universal service and access in the "true access gap" is to be established. Universal access has not yet been achieved although there is 80 per cent mobile coverage (but only 62 per cent active mobile broadband subscriptions) but following a survey the ministry has discovered that even where coverage exists, the quality of service is poor. In addition, schools in outlying villages are not connected because they cannot afford the services. The draft law to improve the powers of the fund could take these factors into account with reference to the country's commitment to the 2030 SDGs.

According to the UN, small island developing States (SIDS) such as Comoros have their own specific vulnerabilities and characteristics. These include their small size, remoteness, narrow resource and export base, and exposure to global environmental challenges and external economic shocks, including to a large range of impacts from climate change and potentially more frequent and intense natural disasters[12]. These factors will have to be considered in defining targets that will assist in closing the true access gap and moving towards UMC.

4.2 Defining access, availability, and affordability

Although infrastructure deployment remains key to ensure everyone is connected, increasingly digitally-focused funding will need to be considered in all markets including those that are undertaking a review of their fund. Universal service and access funds will need to continue to facilitate the bridging of the digital divide but will additionally need to facilitate the digitalization of the economy by prioritizing the projects focused on connectivity, access and digital adoption[13]. Considering what might be more appropriate involves an assessment of the concepts of universal service and access.

Availability, affordability, and access are critical for services and networks to be universal but elements of digital literacy, which includes awareness of, and ability to use, broadband services,[14] are also becoming increasingly central tenets of connectivity as Internet and broadband

11 www.datahub.itu.int/dashboards
12 Small Island Developing States | Department of Economic and Social Affairs (un.org)
13 Financing universal access to digital technologies and services (itu.int)
14 https://doi.org/10.11120/ital.2006.05040249

services are included in the scope of universal service and access. To these, CRASA has added sustainability and quality of service in the CRASA Universal Service and Access Guidelines, 2021,[15] shown in Box 7, which are also reflected in the ITU definition of accessibility in Box 8.

Box 7: CRASA definitions in the 2021 Universal Service and Access Guidelines

Availability: The principle of availability allows for assurance that essential electronic communication services are easily and readily accessible by all users including persons with disabilities, at all times and without geographical discrimination.

Affordability: This ensures that prices for electronic communications services allow the majority of the population to use the services and ensuring products are tailor made to cater for a wide range of clients. The price of the service should not be a factor that limits use of the services.

Accessibility: The principle of accessibility ensures that all customers of electronic communication services are treated in a non-discriminatory manner with respect to the price, service availability and quality of the service, in all places.

Sustainability: The principle of sustainability allows that the ICTs are provided in line with the US and UA objectives which should be managed and maintained so that their sustainability is ensured.

Quality of service: The principle of quality of service ensures that the ICT services provided under the universal service and access programmes should have the same quality as those provided in more serviced zones.

Box 8: The ITU definition of accessibility

To achieve digital accessibility, ICTs should not only be available and affordable, but also accessible, which means designed to meet the needs and abilities of as many people as possible – including those with disabilities. Accessibility of Information and Communication Technology (ICT) is key given that ICTs have become the primary medium for communications, information, transactions, education and entertainment worldwide. Its implementation by legislators and policy-makers in all countries is essential to ensure that everyone's right to communicate in the digital world is respected.[1]

[1] ICT Digital Accessibility - ITU Resolutions, Global commitment and Resources

It is also imperative that ICT becomes a tool for the essential social and economic development of women and girls[16]. Ensuring digital inclusion includes ICT provision to women and girls will

[15] CRASA Publications | Universal Access and Service for Electronic Communications Sector in SADC Guidelines
[16] See www.itu.int/ITU-D/sis/Gender/

promote gender equality, empowerment and social and economic development of both men and women.[17] [18]

Access, to the extent legally possible, must specifically include access for and by women. These terms are a valuable but also vital starting point for defining fund targets or goals and this section of the revised SADC toolkit considers what these might be.

4.3 Defining broadband

In this section, various definitions of broadband are considered with a view to including these definitions in targets for connectivity. These examples are presented as options and alternatives – depending on the context of the Member State and specific powers and duties of the fund. The section can be referenced when discussing the policy goals of the country and how these could best be given effect to by the fund.

In some countries, regulatory authorities may also have determined licensee obligations with reference to broadband-related targets. To the extent possible, targets set by the regulatory authority and those set by the fund should be aligned where the intention is to achieve universal access and service. Other targets may be set for licensees by the regulatory authority where connectivity already exists, such as speed and quality.

The definition of broadband varies across the region. In Mauritius, given their almost national fixed and mobile broadband connectivity, the fund is already focusing on improving speed and quality of service, while countries like Zimbabwe are prioritizing a minimum level of access, as shown in Table 5. The definitions and descriptions set out below are those currently in use in the Member States – either as legislative definitions or as the definitions that the fund has adopted where the legislative definition is not prescriptive.

Table 5: CRASA Member States definitions of broadband in the context of addressing universal service and access funds

Country	Definition of broadband
Botswana	There is no one definition of broadband because the UASF determines that all citizens should benefit from the fund so when they consider a project, they take into account all equipment needed from the last mile to the end user, as an ecosystem. However, speed is a factor in considering services. Government requires up to 100 Mbit/s for its services as defined by the Smart Botswana initiative whilst the UAS fund aims for a minimum of 50 Mbit/s for all projects.
Eswatini	The UASF has adopted 100 per cent coverage of the country by broadband as a minimum standard but voice services may also be required in some areas. The minimum requirement is 4G.
Lesotho	Broadband is an Internet connection, and where deployed to schools, the connection must be capable of supporting 200 users.
Mauritius	Broadband is Internet access, which is considered to be a basic right.

[17] Ibid.
[18] www.itu.int/en/ITU-D/Digital-Inclusion/Documents/USF_final-en.pdf

Table 5: CRASA Member States definitions of broadband in the context of addressing universal service and access funds (continued)

Country	Definition of broadband
Mozambique	Broadband is Internet access. This forms part of the term 'basic communications', along with voice.
Namibia	Broadband is defined as a minimum of 2 Mbit/s [19] download speed available to 80 per cent of the population at *entry level*, with the aim of increasing the download speeds in line with targets contained in the broadband plan.
South Africa	Broadband is an ecosystem of high capacity, high speed and high-quality electronic networks, services, applications and content that enhances the variety, uses and value of information and communications for different users.
Zimbabwe	No formal definition, but optimal outcomes include 3G and connectivity for data.

In South Africa, the National Broadband Policy, 2013, was the repository of broadband targets, as shown in Table 6. These are included as an example of the way targets can be set by UAS funds, i.e. with reference to institutions, speed, and time. The publication of the National Infrastructure Plan for 2050 in 2022[20] (NIP) (see Box 9), revises the 2030 target for South Africa to remove reference to an 80 per cent connectivity goal, replacing it with a 100 per cent connectivity goal as well as a commitment to every person having broadband access in their homes at a minimum of 10Mbit/s. This is also an example of how targets can and should be adjusted over time, following a review of progress to date.

Table 6: South Africa connect targets for broadband connectivity

Target	Penetration measure	Baseline (2013)	By 2016	By 2020	By 2030
BB access in mbps (citizen) user experience	% population	33.7% internet access[4]	50%@5mbps	90%@5mbps 50%@100mbps	100%@10mbps 80%@100mbps
Schools	% schools	25%	50%@10mbps	100%@10mbps 80%@100mbps	100%@1gbps
Health facilities	% health facilities	13% connected	50%@10mbps	100%@10mbps 80%@100mbps	100%@1gbps
Government facilities	% government facilities		50%@5mbps	100%@10mbps	100%@100mbps

Source: National Broadband Policy, South Africa, 2013

[19] Mbps, or Mbit/s, or megabits per second, refers to the speed at which data can be transmitted over a network.

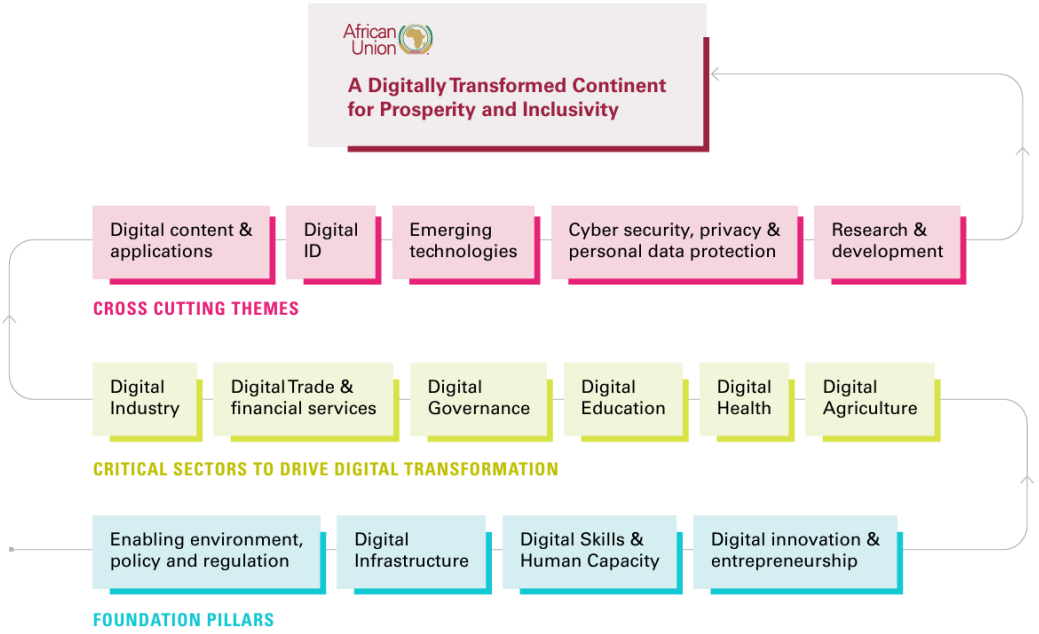
[20] 50GB for everyone: state sets out plan for universal broadband - TechCentral

Box 9: The South African National Infrastructure Plan for 2050 (NIP 2050)

The first phase of NIP 2050 focuses on four strategic sectors: energy, water, digital infrastructure and freight transport. Whilst NIP 2050 is not comprehensive and does not prescribe specific projects or measures to be taken, it provides some insight into the government short- to medium-term priorities for strengthening these four critical sectors and their contribution to the South Africa economy. The NIP anticipates that by 2030, every South African should have access to affordable broadband at home, offering speeds of at least 10 Mbit/s and generous amounts of data (at least 10 Gbit/s by March 2024 and 50 Gbit/s by 2026); and by 2030, 100 per cent of the population should have easy access to affordable broadband of at least 10 Mbit/s, among other goals.

By contrast, the African Union Digital Transformation Strategy 2030 is built on the blocks described in Figure 10.

Figure 10: The pillars of the African Union Digital Transformation Strategy, 2030



Source: The Digital Transformation Strategy for Africa (2020-2030) | African Union

As part of this initiative, the African Union also launched the SMART Broadband 2025 Strategy to enable countries to deliver increased affordability and access to broadband connectivity by 2025 to position Africa as a player in the 4th Industrial Revolution (4IR). The basic African Union goals in relation to broadband connectivity, which can also be considered to be targets, are:

- affordability;
- 3Mbit/s minimum download speeds;
- increased access to content at least 30 per cent of which is generated and stored in Africa;
- devices partially manufactured in Africa; and

- increased broadband penetration (moving by 50 per cent from the existing 39 per cent in 2019 up to 51 per cent by 2025 thereby adding 308 million people on broadband)[21].

Accessibility for broadband is frequently determined by whether or not the user has physical access to shared or community computer terminals (in libraries or post offices, schools or other government institutions) or is able to access the Internet using their own devices. Owning devices in the first place is challenging for most rural communities in some Member States (affordability of devices can therefore be considered as one of the priorities in UAS projects, which is discussed later). In achieving access, the focus in Botswana and Zimbabwe is on installing broadband connectivity within an existing government facility. Projects in Tanzania are chosen based first on location (rural areas or urban), and then on whether they have electricity or not, and also whether there are government buildings (institutions) in the area such as schools, clinics and post offices. In Mozambique, as shown in Box 10, other factors are considered.

Box 10: Case study – Mozambique

The Telecommunications Strategy approved by Decree No. 64/2006 of 26 December provides that citizens have a right to unrestricted and non-discriminatory access to the country's communication and information services. As market forces alone will not meet all of the government ambitions for social development, the government commits to developing a programme of universal access to telecommunications, the fundamental objective of which is to ensure that all citizens can benefit from access to basic communication services and to promote progressive access to a wide range of information communication services. The universal access programme is supported by the specific obligations imposed on operators, however, although obligations can be imposed through licence conditions, this was not the case in late 2023.

The medium- and long-term objective is to establish universal service that allows every family in the country to be directly connected to the public telecommunication network and services; while universal access refers to the short- and medium-term objective of providing access to communication and information services, considered essential and feasible for the entire population but on a community basis, through the installation of public access centres.

Both voice telephony and Internet services are considered to be basic telecommunications services in Mozambique. Voice services must be provided in the following ways:

(a) direct public access in all rural localities and village population centres with more than 500 inhabitants; and
(b) public access reachable within a maximum of 5km, to all population centres.

[21] SMART Broadband 2025 provides a holistic approach through seven thematic areas designated as pillars to deliver sustainable broadband. The pillars are: a) technology, infrastructure and devices; b) demand side-capacity building, awareness and affordability; c) content, application and services; d) innovative economic models to mobilize investment; e) policy and regulatory frameworks; f) cyber security and trust; and g) social inclusion – gender equality. See Transforming Africa into a single digital market - Broadband Commission.

Box 10: Case study – Mozambique (Continued)

Public Internet and Information access services must be made available through the establishment of Internet points of presence (POPs) in all district capitals and at least one public access facility, such as a telecentre or Internet cafe.

In addition, a national emergency telephone service must be established to facilitate the best response in cases of national disasters and emergencies; and Instituto Nacional das Communicacoes de Mocambique (INCM) is tasked with planning and the practical implementation of this system and must co-ordinate this with network operators and defence and security institutions.

INCM must also define appropriate indicators and targets for universal access throughout the country within a reasonable time and, eventually, the achievement of universal access service (more typically referred to as universal service). INCM must then assess progress taking into account the objectives set and propose policies and other measures necessary to achieve these objectives, and in doing so it must co-ordinate with other government entities.

Regulations dealing with universal service dated 2017 are published on the INCM website. In 2006, a regulation governing the establishment and operation of the fund was published. In 2007, a regulation dealing with contributions to the fund was published.

4.4 Universal and meaningful connectivity

Over time, global, regional and national priorities and policy commitments have changed considerably, and so should the targets for UAS funds, and the types of projects that might be selected for funding, as a result. Historically, such funds may have used any one or more of the following:

- **Geographic targeting** – this type of targeting is implemented using an evidence-based approach derived from having conducted market research in an area. Geographic targeting accommodates beneficiaries that are concentrated in certain areas. It is most precise or effective in areas where the population is geographically isolated; or where infrastructure and service gaps are based on geography, which can be determined through market gap analysis. Traditional universal access models identify the market access gaps and use funds to address challenges outside of the market efficiency gap. However, in the case of broadband projects, which may require more financing than a fund can handle, and may require an alternative public financing, another model has been used which involves a colour-coded map of areas that should be awarded funds, explained in Box 11.
- **Means test targeting** – is an approach that sees beneficiaries determined based on affordability. This is determined using income, a proxy means test or sometimes using living standard measures (LSM) such as availability of a dwelling. This approach is, however, likely to be more effective in middle income countries, particularly where an existing social grant or welfare system is in place which can be used as a point of reference. Monitoring and implementation of this type of targeting is more complex (beneficiary's status can change, thus making it susceptible to fraud).

- **Community-based targeting** – this approach allows beneficiaries to be identified by the community itself, such as schools. This approach is intended to increase ownership and buy-in, increasing the sustainability of the project. However, this approach may take more time to implement and is at risk of being influenced by special interests (within the community or from outside, including by politicians with family members or homes in the area).

Box 11: Geographic targeting using colour mapping

White areas: no broadband infrastructure exists and none is likely to be developed in the near future (there is a 'true access gap').

Grey areas: only one broadband operator exists, but affordability and accessibility may be an issue for low-income users.

Black areas: two or more broadband providers are present in the area creating competition in services.

Although these targets may still be recognisable and even appropriate depending on the country context, in order to move towards UMC, these selection methods should be used together with selection methods that are appropriately aligned with targets for achieving the SDGs by 2030.

The UMC framework referenced in section 4.1 can assist in analysing the current state of digital connectivity and progress made by a country in reaching the targets by 2030. Box 12 contains a summary of this framework which is sourced from the UN Background Paper[22].

Box 12: Universal and meaningful connectivity

Although not explicitly mentioned, universality is implied for each enabler: for a status to be met, that outcome must be for everyone. For instance, in the meaningful connectivity stage, infrastructure would be fast and reliable for everyone; everyone would own a smart device. To enhance the quality of connectivity, a certain threshold of performance must be reached on each of these factors, as each represents a binding constraint: there is no connectivity without infrastructure; no one will want to connect if it is prohibitively expensive; one cannot connect without a device; and connecting is possible but hazardous without any security. Similarly, there is no meaningful connectivity without improvement by all enablers. If a country completely neglects, say, digital literacy, the capacity of its population to make good use of connectivity is irremediably compromised, even if all the other factors are in place.

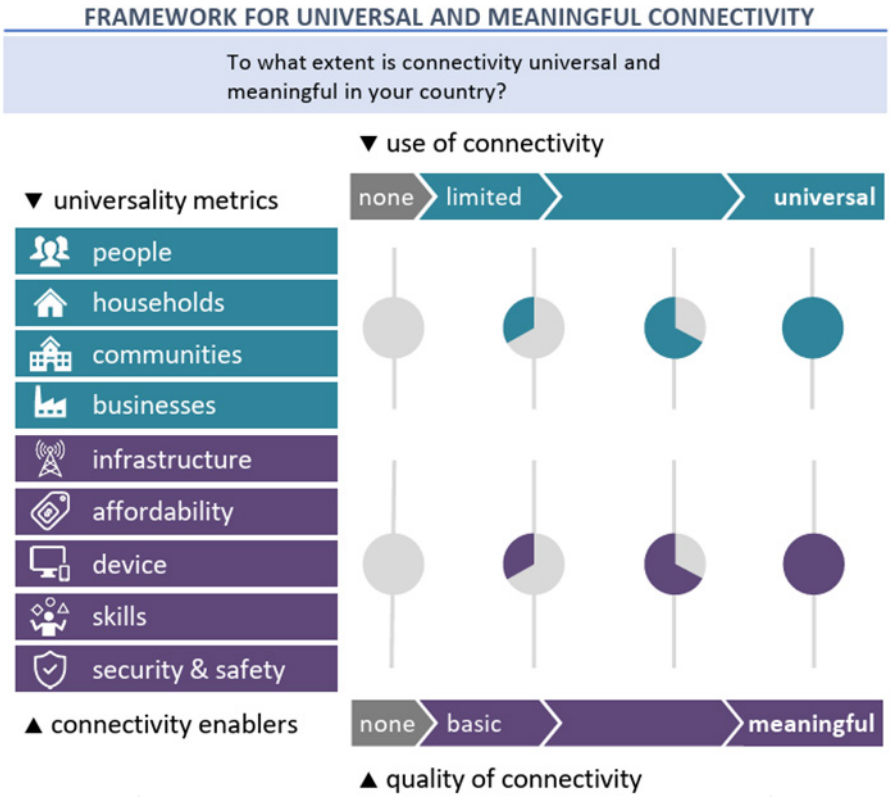
Universal connectivity is defined as connectivity for all. Meaningful connectivity provides for connectivity that allows users to have a safe, satisfying, enriching and productive online experience at an affordable cost. The two dimensions are complementary: neither universal connectivity with poor quality nor meaningful connectivity for the few will yield significant,

[22] UniversalMeaningfulDigitalConnectivityTargets2030_BackgroundPaper.pdf (itu.int)

society-wide benefits. However, when applied together, the two can reinforce one another[23]. These inspirational targets complement the African Union 2030 targets described in Figure 10.

Below, Figure 11 describes the universal and meaningful connectivity framework for identifying the factors that could be considered when revising UAS targets as part of the ongoing review.

Figure 11: Universality and connectivity metrics



Source: UN Background Paper: Achieving universal and meaningful digital connectivity

4.5 Setting a baseline and targets for 2030

Adopting aspirational goals in the context of universal service and access will require some interim goals and planning to get to UMC. It is impossible to move from no connectivity to an aspirational goal of 100 per cent broadband coverage within a short period of time. Starting with the end goal, the fund should work backwards to set a baseline. Not only does this enable good planning, but it also enables the fund (and anyone measuring the performance of the fund) to structure and then to measure the impact of its various initiatives over a period of time. These initiatives should follow the steps explained below.

Appendix 1 contains, as an example, a set of indicators that each rely on a single measure, such as the share of the population that is already connected to establish a baseline. Indicators are not intended to be considered in isolation meaning that the baseline should include information such as the number of indicators for which a country is on track to meet the SDG 2030 targets. The baseline could also feature the number of indicators where a country is below/above/in line with its peers, including those in the SADC region.

[23] About the Universal and Meaningful Connectivity (itu.int)

More granular data, where this is available, is necessary to create a dashboard. This may include:

- assessing the broader socio-economic impacts of digitalization;
- including information on the policy, regulatory and fiscal environment, the status of digital skills, gender, age and education;
- addressing pricing and affordability of services and handsets;
- discussing the state of adoption or take-up; and
- discussing the state of coverage and access and in so doing provide detail on Internet quality and speed.

The relationship between the SDGs and some of the indicators are described in the ITU Global Connectivity Report. The relationship between these indicators is included as an example in Appendix 2.

It is important to set progressive goals that are achievable within the timeframe and budget determined by the fund, with a view to meeting the aspirational goals in due course. This does, however, assume that it is possible to meet one goal and build on that to move to the next. Thus far, this type of progression has not been the SADC experience for the majority of Member States. However, Namibia's experience is detailed in Box 13 as an example, and Communications Regulatory Authority of Namibia (CRAN) powers to make these determinations on an ongoing basis are set out in Box 14.

Box 13: Case study – Namibia

The Government of Namibia passed the National Broadband Policy for the period 2019-2029. The goal of the policy is to achieve reliable and affordable broadband access infrastructure services for all. The policy defines broadband as "a minimum of 2 Mbps download speed available to 80% of the population". The policy notes, however, that the minimum download speed of 2Mbit/s is broadband at entry level, which is to be reviewed with the aim of increasing the download speeds "in line with targets contained in the broadband plan. The definition of broadband coverage includes geographical and population coverage for telecommunication networks and coverage of the population for broadcasting." This can be considered to be the broadband target.

By analysing the Internet speeds of other SADC Member States, CRAN concluded that Namibia was significantly behind achieving universal and meaningful connectivity and that this was possibly as a result of state ownership and insufficient competition in the ICT sector. This appeared to result in insufficient investment in last-mile connectivity, most notably mobile 4G broadband, resulting in low quality of service and high end-user prices. This state of affairs existed despite the two largest operators, Telecom Namibia and MTC, having national coverage, as the population coverage by 4G is only at 79 per cent. CRAN also notes that Namibians without a 4G handset can only use 3G services for mobile Internet access. For those living outside of 4G coverage areas, there is also no incentive to buy a 4G handset.

Box 13: Case study – Namibia (Continued)

Thus, the four main objectives of the policy are:

1) To ensure universal access to broadband infrastructure and services: Provide quality and affordable broadband countrywide.
2) To promote the development of content, applications and innovation: Enable the use of the e-application in government and other sectors of the economy to improve service delivery.
3) To support efforts aimed at capacity building, create awareness and reducing the digital divide:
    - drive demand and stimulate public and private sector innovation and investment,
    - improve digital literacy,
    - promote the continued development of the broadband ecosystem.
4) To provide and enabling environment for broadband deployment:
    - create an enabling policy, legislative and regulatory environment for broadband deployment,
    - promote consumer protection through appropriate regulations.

The policy objectives have been considered by CRAN in determining its approach to universal access and service because CRAN may, under section 57(1) of the Namibian Communications Act, prescribe which telecommunications services are the "minimum set of services that should be made available by licensees". This is the definition of universal service in the Act. CRAN may issue an order to a licensee to provide a specified form of universal service in a particular area and the order must state if any subsidies will be paid from the fund and if so, the amount or basis on which they will be calculated.

Box 14: CRAN powers to determine universal service and access projects under the Namibia Communications Act

The services may constitute any of the following under section 57:

(a) the minimum number of prescribed telecommunication facilities or services that must be made available to a community of a prescribed size;
(b) in the form of specified equipment that should be made available in order to cater for the telecommunication needs of a specified category of community;
(c) in the form of specified services to be made available to specified categories of customers in specified categories of communities;
(d) in the form of specified telecommunication services that are available to the public or that are rendered to schools, hospitals, or any other specified category of place that serves the needs of the public or that are available for use by the public;
(e) in the form of the deployment of any technology that will promote the availability of telecommunication and information services in Namibia;
(f) in any other manner that may be necessary to specify the form, scope, nature or any other aspect of the services in question. issue an order instructing a licensee to provide a specified form of universal service in a specified area.

This example of a programme takes into account several factors leading to new targets for the fund in Namibia, to enable them to achieve universal and meaningful connectivity. Creating or designing connectivity programmes should therefore take account of the elements listed in Figure 4, and others such as:

- the enabling environment, which is under the control of the regulatory authority and policy-makers, and which gives the green light for the implementation of projects;
- choosing the right technical solution which can be measured in terms of speed, technology and network elements;
- non-ICT infrastructure, which is core to any project (electricity and security being just two aspects);
- smart devices, whether shared or personal in more connected areas; and
- other digital infrastructure, which is sometimes in the form of applications (apps), platforms, and software.

Each country will have its own preferred solution, so the process of setting targets for universal access and service can be different but the targets should, in all cases, be revisited regularly with reference to the baseline. This aspect is important to understand in as much detail as possible – hence the recommendation to map connectivity and access as a complementary tool to the baseline research.

Ideally, programmes should be defined broadly, and project types should not be prescribed in too much detail in legislation, given the fast pace of change and innovation in the sector.

5 Funding the fund

5.1 Review of the sources of funding

When conducting a review of a fund, it is important to consider the path of both incoming and outgoing monies. While the sources of finance (incoming) are a key element of any review, the ways in which subsidies or direct contributions to projects are made (outgoing) are equally important. Questions that fund managers, regulatory authorities, relevant ministries, and licensees should address when conducting a review are:

- Is the collection framework appropriate, for example, does the money collected go into a separate, ring-fenced fund or the general government budget? If not, how can this be created or encouraged?
- Does the legal and regulatory framework enable the fund to disburse monies effectively? (This can be assessed by reviewing definitions of universal access and targets, definitions of eligible beneficiaries, scope of programmes, demand and innovation, as well as supply.)
- Does the legal and regulatory framework enable the fund to collect donations, grants and other monies?
- Does the legal and regulatory framework enable the fund to seek finance from non-traditional sources including non-government organizations (NGOs) and multinational finance institutions, or even soft loans?
- Are the institutional arrangements strong enough to allow the fund to be effective in that there are measures for reporting and accountability, separate boards, separate bank accounts, and so on?[24]
- Is it appropriate or useful to determine the actual cost to establish, manage and disburse funds relative to the benefit they confer?

A key issue observed during the course of the compilation of the revised SADC toolkit, was the tendency for monies collected by or intended for a fund, or more accurately, for the purpose of achieving national goals of universal access and service, to be moved out of a fund and used for other purposes (sometimes, not ICT-related), or to be paid directly to central government. This reduces both the control of fund managers over finance and their ability to disburse monies for approved projects. This may also result in the perception that the fund is not successful or not transparent in its collection and application of monies. This being the case, stakeholders may well consider the fund to be unnecessary or unable to carry out its mandate. This revised toolkit considers how this might be addressed.

5.2 Operational cost of the fund

The expenses incurred to operate the fund are an important factor in determining if the sources of income are adequate. One of the benefits of a fund that has been established for some time, is that there will be a record of the cost of operating it and expenses incurred. This is not the same as the amount that the fund is able to disburse for projects and must be calculated separately.

The purpose of recording costs is to ensure that what is being spent is proportionate to the outcomes of projects supported by the fund. The purpose of reviewing costs is to ensure the optimal functioning of the fund with the most appropriate structure and necessary resources to meet the national goals for universal access and service. Assessing the expenses should

[24] Taken from section 9.4 of Financing universal access to digital technologies and services (itu.int) with modifications.

form part of the regular review of the fund, and the operating costs should be reflected in the published accounts. The ITU Universal Service Financing Efficiency Toolkit describes the types of expenses that are likely to be incurred by a fund in Part B, reflected in Figure 12[25].

Figure 12: Understanding fund expenses

Understanding fund expenses	
Administration expenses	Administrative expenses apply to operations and management of the programme or project. For example, the costs of general meetings (UAS fund board, oversight committees), legal services, auditing, accounting and finance services, and insurance. This includes general human resources costs and procurement costs for the UAS fund. There is often no legislated maximum, however NGOs, philanthropic and charitable organizations tend to cap these costs at between 25 to 35 per cent of total costs.
Programme / project expenses	Programme expenses or "disbursements" are directly related to carrying out the project or programme. Project / programme specific goods and services that are procured are included. For example, payments of subsidies and grants would be part of programme expenses. In addition, payments for procuring assets such as equipment for a project such as a school or hospital connectivity project would be considered project costs. Project specific human resources costs and procurement costs are included in programme / project expenses (e.g., a project manager hired only for the duration of the project, not generally employed by the UAS fund).

Source: ITU Universal Service Financing Efficiency Toolkit, Policy and Regulation (itu.int)

5.3 Review traditional sources of funding

Historically, contributions to funds range from 0.2 per cent (e.g. in South Africa, see Box 15) to 6 per cent (e.g. in Malaysia), with an average of 1 to 2 per cent of licensee turnover in most countries. The requirement to pay this levy is usually set out in legislation or regulations. The Government of the Democratic Republic of the Congo currently charges among the highest levies in the SADC region (see Box 16).

Box 15: Contributions to funds in South Africa

In South Africa, all individual licensees (network, service and broadcasting) contribute 0.2 per cent of gross revenue from licensed services to the fund. While broadcasting licensees also contribute to the Universal Service and Access Fund in South Africa (USAF) they are permitted to deduct their contribution to the Media Development and Diversity Fund (MDDA), which is specific to broadcasting projects.

[25] www.itu.int/itu-d/reports/regulatory-market/2022/02/01/assessing-the-fund/

Box 16: Contributions by licensees in the Democratic Republic of the Congo

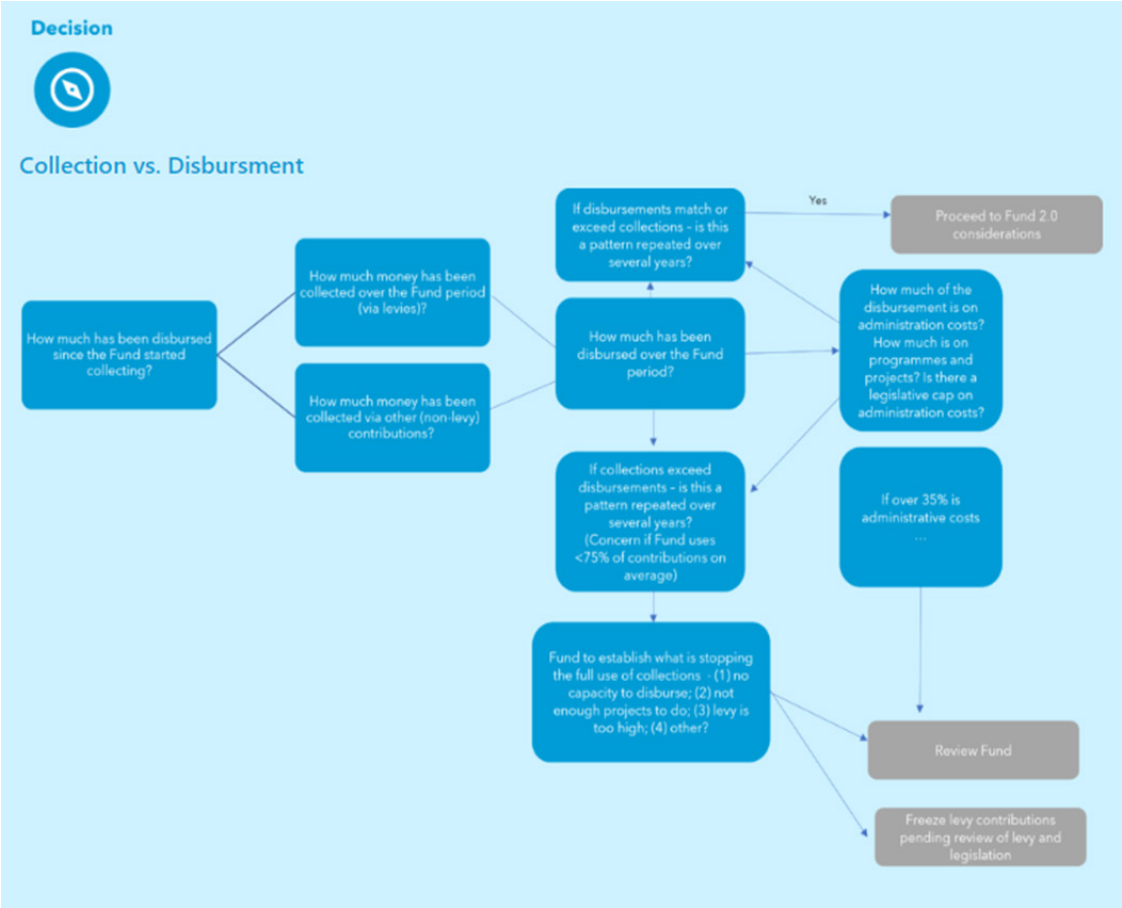
The level of the licence fees payable by licensees is at 3 per cent of gross turnover. This sum is intended to cover both licence fees and contributions to the fund. Government, through the regulatory authority, has in the past attempted to tax mobile services, but abandoned that in favour of a tax on usage of voice, SMS and data. The levy was justified as a payment for regulatory services, such as monitoring the quality of services, controlling the protection of personal data, controlling incoming and outgoing traffic and ensuring the technical inspection of sector equipment. According to the GSMA, operators in the Democratic Republic of the Congo are paying 34 per cent of their total revenue in tax. Taxing operators too much, or in too many different ways, may undermine their ability to, and interest in, funding UAS and may in fact result in recruitment and coverage plans being curtailed[1].

[1] DRC plans for mobile consumption tax cause more controversy - Developing Telecoms

In many countries, despite changes in operator revenue and profitability and the introduction of new players and changes in market size, the levies have not changed since they were first introduced, creating the impression that the levies bear no relation to sector needs or identified universal access and service gaps. This creates the perception that levies are set without any analysis of the subsidy levels needed. To address this, universal access and service needs and gaps analyses should be carried out. This will be critical in setting levies going forward and to guard against 'over-collection' or 'under-collection.'

The review of the fund, which should also include an audit, should include aspects that directly address the over-collection perception. An example of how to review the fund for this purpose is set out in the ITU Universal Service Financing Efficiency Toolkit and captured in Figure 13.

Figure 13: Reviewing collection vs disbursement of funds



Source: ITU Universal Service Financing Efficiency Toolkit, Policy and Regulation (itu.int)

The audit should also focus on understanding on how underspending or overspending may have occurred. It is important that the analysis should answer the following questions:

- How are monies intended for the fund allocated?
  - Do funds go directly to the fund or to a national treasury?
  - If the latter, does the fund have to apply to allocate or disburse monies? Is the levy and the amount the fund receives the same?
- Can the fund be used for universal access and service?
  - Is the fund ring-fenced for universal access and service projects?
  - Have contributions made to date, and those made after the date of the review, been captured separately so that they can be dealt with differently?

For example, in South Africa, licensee levies are paid into the national treasury and the fund must apply for an allocation based on an annual budget. There is no guarantee that all funds collected from licensees and other sources can in fact be allocated to universal access and service projects by the fund in South Africa as the fund managers do not have control over this. This can add weight to the argument (that has been raised in Mauritius, and Namibia, for example) that the fund is a just another general tax[26].

[26] Adapted from the ITU Universal Service Financing Efficiency Toolkit, Part B.

Contributions to funds made by licensees in the SADC region together with other sources of finance are recorded in Table 7.

Table 7: Sources of revenue for SADC funds

Country	Source	Separate or part of regulatory funds	Commentary
Angola	1% of licensee revenue + a share of *Instituto Angolano das Communicacoes* (INACOM) revenues; interest on bank deposits and other investments; loans; the balances from previous financial years; any other income arising from its activity or which, by law or contract, may belong to it or be assigned to it, as well as any subsidies or other forms of financial support[27]	Separate, managed by Angola Communications Development Support Fund (FADCOM)[28]	The fund management is separate from the regulatory function and neither of them determine how to spend the funds – Government decides this. In addition, the fund receives a share of INACOM revenues (the regulator); interest on bank deposits and other investments; loans; the balances from previous financial years; any other income arising from its activity or which, by law or contract, may belong to it or be assigned to it, as well as any subsidies or other forms of financial support.[29]
Botswana	1.1% of licensee turnover	Same	There is a separate unit with a separate account in the name of the regulator. Botswana Communication Regulatory Authority (BOCRA), the regulator, must contribute any balance of its budget to the fund at year end.[30]
Democratic Republic of the Congo	3% of licensee gross turnover	Same	All within government control, not allocated to the regulator (no fund set up).[31]

27 Estudo Serviço Universal ARCTEL (EN)-v2.pdf (a4ai.org) (a4ai.org/wp-content/uploads/2017/03/VdA-Universal-Access-Estudo-Serviço-Universal-ARCTEL-EN-v3.pdf).

28 Fundo de Apoio ao Desenvolvimento das Comunicações (Communications Development Support Fund). [Access to the website was denied].

29 Estudo Serviço Universal ARCTEL (EN)-v2.pdf (a4ai.org) (a4ai.org/wp-content/uploads/2017/03/VdA-Universal-Access-Estudo-Serviço-Universal-ARCTEL-EN-v3.pdf).

30 Information provided during an interview with representatives of the Botswana Universal Access and Service Fund (UASF), and the UASF OPERATING MANUAL.

31 Information provided during an interview with representatives of the regulatory authority, ARPTC.

Table 7: Sources of revenue for SADC funds (continued)

Country	Source	Separate or part of regulatory funds	Commentary
eSwatini	0.5% net income of licensee	Separate	Fees are invested to earn interest to offset charges. The fund also approached the UNDP directly for financial assistance. The UNDP has been assisting eSwatini to achieve its SDGs since 2016 and a memorandum of understanding (MoU) was signed in 2023 to assist in bridging the digital divide.[32]
Lesotho	1.1% of licensee turnover	Separate	Government received a loan from World Bank in 2021 for base station rollout costed by the fund.[33]
Malawi	Determined in each licence (in 2023 the currency devalued by nearly 80% which decreased the value of the fund)	Separate	The Act envisages a levy on licensees; monies appropriated by parliament; grants, subsidies, bequests, donations, gifts and subscriptions from government or any other person; competitive minimum subsidy auctions; public access projects to generate income for long-term financial self-sustainability; and funds made available by the regulator at the end of a financial year.
Mauritius	0.3% of gross turnover for 'small' licensees and 0.4% of gross turnover for 'large' licensees	Separate – but questions about whether a fund is needed at all given there is no distinction between rural and urban.	PPPs will not work in Mauritius, because they do not want the costs to be passed on to consumers. The fund is concerned that monies should not be accessed by central Government and is dedicated only and specifically to universal service.
Mozambique	1.1% of licensee gross revenue	Same	World Bank launched the Mozambique Digital Acceleration Project in collaboration with the Government, to run from 2022 to 2028[34], for the purpose of several policy reforms; expansion of mobile broadband networks to cover >2 million people in deeply rural areas; free public Wi-Fi access points and programmes to reduce the price of smartphones in underserved communities and for disadvantaged groups; and a digital skills programme.

[32] Eswatini | MPTF Office (undp.org); Eswatini | United Nations Development Programme (undp.org) and UNDP signs MOU with ESCCOM to bridge digital divide | United Nations Development Programme

[33] Information provided during an interview with a representative of the Universal Service Fund in Lesotho.

[34] Moving Mozambique Toward a Digital Future (worldbank.org)

Table 7: Sources of revenue for SADC funds (continued)

Country	Source	Separate or part of regulatory funds	Commentary
Namibia	1.5% of licensee turnover for both regulatory fees and UAS fees	Suspended by litigation but should be notionally separate within the regulator	The fund believes a 0.5% levy (provided it is paid by all licensees) would be sufficient to achieve national coverage within three years.
South Africa	0.2% of gross licensee turnover	Not in operation but it was separate, although funds were collected by ICASA, paid to the Central Revenue Fund of Government, and disbursed by Parliament	There is no information regarding other sources of income or donor support.
Tanzania	1.25% of licensee turnover	Separate	Also receive remainder of regulatory budget at the end of a year. World Bank provided a 'soft' loan to government for school connectivity as part of Digital Tanzania (not part of UCSAF); but the fund was permitted to use some of the money to provide a capped subsidy to mobile network operators (MNOs).[35] UNICEF funded schools project to train teachers which was also separate from the fund monies, but it was used in conjunction with the fund which identified the beneficiaries.
Zambia	1.5% of licensee turnover	Separate unit within the regulator	Earn interest on investments when funds are not immediately required; received a portion of bid amounts pursuant to spectrum auction from Government, for purpose of tower build. Government can (through Zamtel) carry out projects.

[35] This is part of the Digital Tanzania Project which is being implemented by the Minister of Information, Communication and Information Technology and the President's office.

Table 7: Sources of revenue for SADC funds (continued)

Country	Source	Separate or part of regulatory funds	Commentary
Zimbabwe	1.5-2% licence fees are paid to central Government, budget is submitted by the fund for allocation by Government if approved	Unit within the regulator	Funds are invested where possible to earn interest. Other mechanisms are used to extend coverage without funding – POTRAZ can require licensees to relocate towers from one area that is built-up, to another area, if they serve the same customers; relocation is spread between licensees, fund may cover cost of relocation but then fund owns the tower and it must be shared between licensees at no cost – the former owner becomes the 'manager' with responsibility for all operational matters.

5.4 Consider other sources of funding

To facilitate digitalization, the revised SADC toolkit notes that funds are likely to need to expand their contribution base beyond those who have traditionally participated in the ICT sector (i.e. licensees, by paying levies). As the benefits of the digital economy expand to other sectors, companies in those other sectors should be encouraged and incentivized to contribute in order to increase their benefits.[36] Some of the trends observed in latter-day financing of universal access and service are shown in Box 17.

Box 17: Trends in finance and support for universal service initiatives

The ITU report on financing universal access to digital technologies and services observed the following trends:

- Using a combination of monetary and non-monetary, or in-kind, contributions, based on project needs and the various strengths of collaborative financiers.
- Making smarter investments and thus a move away from funding (out of a moral imperative) to financing, which is more commercially grounded and relates to making good investments, while contributing to socio-economic development.
- Collaboration between governments, commercial banks, development finance institutions, the private sector and bilateral and multilateral donor organizations to meet funding gaps is increasing, including through blended finance or the strategic use of development finance to mobilize additional finance for sustainable development in developing countries.

An innovative means of sourcing alternative funding is through the fund of funds model[37]. This, however, requires that the fund can demonstrate sufficient governance mechanisms and

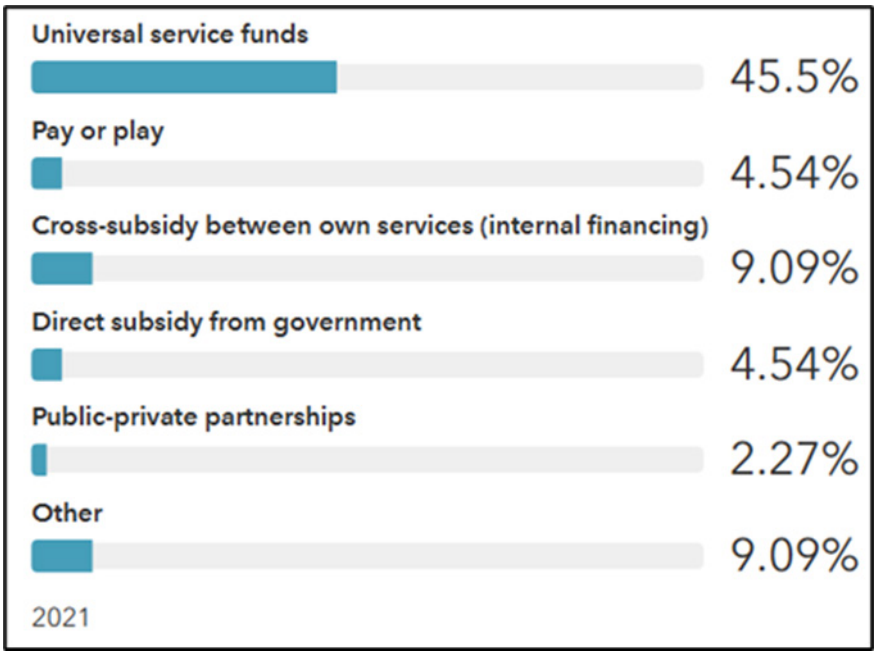
[36] Broadband Commission Working Group report on 21st Century Financing Models for Bridging Broadband Connectivity Gaps. https://www.broadbandcommission.org/publication/21st-century-financing-models/

[37] https://www.itu.int/itu-d/reports/regulatory-market/2022/02/01/assessing-the-fund/

credibility to ensure a level of trust and reliability over a sustained period.[38] Fund of funds means that the fund invests surplus monies into another type of investment fund typically for small to medium enterprise development and accelerators. This can be difficult if the fund is not well-financed, or if the budget has already been allocated to proposed projects.

Another form of finance that has been considered in the past is the public private partnership (PPP). However, Figure 14 indicates that only 2.27 per cent of projects across the continent have been funded using PPPs[39], suggesting that it is not a popular or perhaps not a successful model. This does not mean it will not work for certain countries, but the approach must be properly evaluated. The Broadband Commission notes PPPs have been found to be most successful when used to address upgrade and coverage gaps and sustainability.[40]

Figure 14: Funding of universal service in Africa



Source: ITU Data Hub

In the digital environment, investors are looking not only at funding network deployment but also at financing data centres, digital platforms and content providers. Development finance institutions have recently also become interested in ICT projects because of the central role that broadband plays in development and therefore the alignment of broadband projects with development mandates[41].

Increasingly there is seen to be a need to supplement public and development funding with private capital, including the examples shown in Figure 15.

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38 www.itu.int/itu-d/reports/regulatory-market/2022/02/01/assessing-the-fund/

39 This is one of the mechanisms which the JD has requested information about as a possible method of finance.

40 21st Century Financing Models for Bridging Broadband Connectivity Gaps (broadbandcommission.org)

41 Development finance institutions have been financing development in the SADC region and advancing productive capacity; in line with the objectives of SADC outlined in the Regional Indicative Strategic Development Plan (RISDP) 2020 – 2030: SADC Development Finance Institutions (DFI) Network commits to developmental mandate while ensuring its sustainability | SADC

Figure 15: Sources of alternative funding for universal access and service projects

In addition to the private sector, the other sources of funding include:

(a) Development finance institutions, such as the African Development Bank (AfDB), the European Investment Bank (EIB), the European Bank for Reconstruction and Development (EBRD), the Asian Development Bank (ADB), the Inter-American Development Bank (IDB) and the International Monetary Fund (IMF). Development finance institution funding for infrastructure is often backed by developed countries and provides loan guarantees as direct financing or, in some cases, equity contributions to a project proven to benefit the development of underserved countries or regions.[1]

(b) Multilateral and bilateral agencies such as ITU and the World Bank, which can provide financial and in-kind support for projects.

(c) Global aid agencies, such as those from the United States (USAID), Germany (GIZ), Canada (CIDA) and Sweden (Sida), and bilateral development finance institutions, such as Proparco in France and KfW in Germany, can provide financial and in-kind support for projects that meet developmental goals.

(d) Private-philanthropic investors, such as foundations, non-profits, impact investors with sub-commercial return expectations, and so on.

(e) Banks and private commercial investors, including private equity firms, venture capital firms and impact investors with commercial return expectations.

[1] Submarine Cables: Structuring and Financing Options. Salience White Paper. See: https://salienceconsulting .ae/wp-content/uploads/2018/09/Submarine_Cables_Structuring_and_Financing_Options_Jan_2015.pdf

Source: Section 5.1 of the ITU 2021 Report: Financing universal access to digital technologies and services (itu.int)

The entities which are involved in initiatives and investments geared towards the adoption of broadband and innovation tend, however, to have a higher risk appetite and to be more interested in short-term returns. In addition to these funders, key stakeholders that can play a role in financing adoption and innovation-related projects and initiatives include:

(a) Local content providers, data centre providers, telecommunication operators and global digital platform providers whose core business relates to and depends on aspects of digital adoption, use and inclusion.

(b) Private equity and venture capitalists who are seeking to monetize "the next big idea" by investing in innovation; and technically-oriented entrepreneurs primarily through investment in incubation hubs and accelerators.

(c) Governments, academia, NGOs and donor organizations interested in local content development, advancing the digital agenda, achieving the SDGs and creating jobs[42].

Moving towards UMC, funds must now also consider the importance of increasing digital literacy and jump-starting the development of small-medium/micro enterprises (SMEs/SMMEs). This can be done by promoting digital content ecosystems which requires investing in relevant, local business processes as well as content to help build a user base large enough to reach critical mass (i.e. significant scale and demand) and therefore decrease the need for funding[43].

[42] Financing universal access to digital technologies and services (itu.int)
[43] Section 5.2 of the 2021 ITU Report: Financing universal access to digital technologies and services (itu.int)

Box 18: Summary of best practice - sources of funding

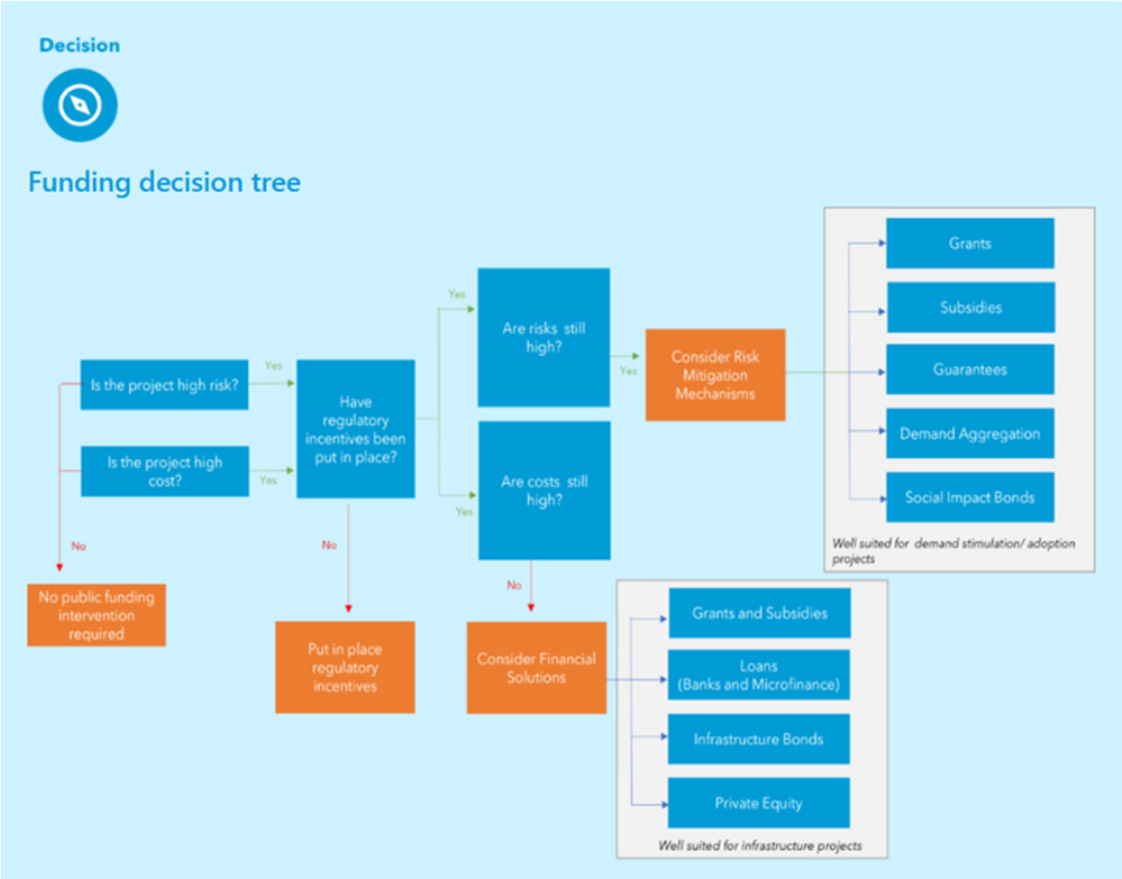
The fund collection methodologies discussed here are not mutually exclusive. For pragmatic reasons it may be best for Member States to rely on a combination of funding sources. The decision of the fund collection methodology should score well in relation to the following:

- **Non-market distorting** – funding mechanisms should promote economic efficiency and should not distort economic or market behaviour. The fund should not impede competition, should avoid free-rider effects and should stimulate additional investment.
- **Equity** – the contribution scheme should be fair and reasonable, and similar costs should be borne by contributors with a similar ability to pay.
- **Competitive neutrality** – no operator, licensee or other provider should be favoured; the principle of non-discrimination should be adhered to.
- **Technology neutrality** – no technology should be favoured; the principle of non-discrimination should be followed.
- **Certainty** – the contribution/ arrangement should be specific, predictable and sustainable.
- **Transparency** – there should be mechanisms to enable the public scrutiny of information, as far as is reasonably practicable.
- **Cost-effectiveness** – the introduction of the fund collection methodology should be cost effective, as should its ongoing maintenance and administration.
- **Avoidance** – compliance is key and scope for avoiding requirements, obligations and rules should be minimized.

The decision tree from the ITU Universal Service Financing Efficiency Toolkit[44], shown as Figure 16, may assist when deciding how best to approach alternative sources of funding.

[44] Part A5 of the ITU Finance Efficiency Toolkit.

Figure 16: Decision tree for policy-makers, regulators, and universal service fund administrators regarding when and how to consider alternative sources of funding



Source: ITU Universal Service Financing Efficiency Toolkit, Policy and Regulation (itu.int)

The various sources of funding and their application, risks and factors affecting choice of the most appropriate mechanism are dealt with in detail in the ITU Universal Service Financing Efficiency Toolkit.[45]

5.5 Ring-fencing funds

It is a source of great concern for CRASA members that those involved with funds may not be able to fulfil their mandate in relation to universal access and service. This is because, among other things:

- Monies contributed to funds might be collected and used by central government for purposes other than achieving universal access and service goals (as in South Africa where the fund was used to subsidize set-top boxes during digital migration).
- The fund might be appropriated by government without an indication of when or if it might be made available for disbursement (as is the case in the Democratic Republic of the Congo).

[45] See Financing universal access to digital technologies and services (itu.int); OECD DAC Blended Finance Principle 2: Design blended finance to increase the mobilization of commercial finance; and 21st Century Financing Models for Bridging Broadband Connectivity Gaps (broadbandcommission.org) for more information.

- Government might question why any further effort needs be made to address universal access and service goals since funding exists within the fund for this purpose (as was the case in Malawi, and Mauritius).

It may be useful to consider approaches to safeguarding the contributions made to the fund to ensure they are available for allocation by the fund managers to projects that are in line with the fund objectives and targets. Since Member States all have their own legislative and regulatory frameworks, the content of which varies, a set of questions to be asked in relation to the law or any regulations governing the fund is included as Box 19.

Box 19: Checklist of criteria for autonomous funds

These are examples of some questions to be asked in relation to legislation or regulations that address or could be expected to address the collection, investment and disbursement of and reporting on funds. If the answer in each case is positive, then the fund has autonomy[1] over monies collected. If the answer is 'perhaps' or 'no', then legal advice should be sought on actions that can be taken, including raising questions to national government or at CRASA level, or in an extreme case, in a court of law. The questions below will likely result in an indicative and not definitive answer about the fund autonomy:

1. Does the fund determine the amount of the levy payable by licensees?
2. Does the fund collect the levy from licensees?
3. Is the fund permitted to seek other finance in addition to levies?
4. If the answer to (3) is 'no', is there an express prohibition on this or is the law silent, in which case there may be an implied power to do what is necessary to execute the fund mandate?
5. Is the fund permitted or required to open and maintain a bank account for the purposes in (2) and/or (3)?
6. Is the fund required to report to any third party (e.g. an auditor, government or other body) on the disbursement of monies collected under (2)?
7. Are monies collected by any other entity e.g. the regulatory authority or government which are payable to the fund once collected?
8. If the answer to (7) is "yes", are the monies in fact paid to the fund?
9. Are there any restrictions on the use of the monies collected and managed by the fund that relate to universal access and service objectives i.e. does a law or regulation prohibit or restrict the application of the monies for expenses incurred in the operation of the fund itself?
10. If the answer to (9) is "yes", has the fund got access to other monies that can be used to fund universal access and service projects?
11. Does the fund have a 'legal personality', meaning that it is a standalone entity that has the power to sue and be sued, and/or to open a bank account, and/or to request funds from government or the regulatory authority, and/or to select projects and make disbursements without obtaining permission from any other agency or government?
12. Is there a national law dealing with administration that is likely to support or supports the interpretation of the sector law as intending to create a separate body for the custody of monies collected for a specified legal purpose i.e. universal access and service, without interference?

[1] The Merriam-Webster dictionary describes autonomy as the quality or state of being self-governing, self-directing freedom and especially moral independence.

Unlawful action or unsanctioned disbursements by a fund is not a solution, but if the answer to most of these questions is no, then it is likely the fund is not treated as an autonomous entity, in which case the legal framework creating the fund should be reviewed with a view to:

- obtaining legal clarity about whether or not the framework has been properly applied; and/or
- amending the legislation so that the fund can be properly empowered (and for this, donor or NGO funding for this purpose may be required).

5.6 Non-financial contributions

There are a number of non-financial contributions, interventions, obligations and incentives that can benefit the fund. These can be made by regulatory authorities and government.

Regulatory authorities

As discussed earlier in this revised toolkit, regulatory authorities are generally empowered under primary legislation (sector laws or national laws) to carry out certain functions and obliged to execute certain duties. In many cases, the scope of powers and duties allows for some discretion. For example, a regulatory authority may be obliged to promote competition, but the law will not specify how this must be done; or a regulatory authority may be empowered to make regulations to facilitate infrastructure-sharing between licensees but not provide the mechanisms by which this should take place.

If the law is silent as to the powers and duties of the regulatory authority in relation to universal access and service, other more general powers can enable the regulatory authority to participate, endorse, and offer regulatory assistance. This is the case in Mozambique, where a combination of general and specific powers and duties are included in primary law to promote and support universal access and service, which enables regulatory intervention to this end (see Box 10).

The most obvious way to impose and enforce universal service obligations is to incorporate them into legal instruments such as licences or regulations, or both. A fund will not have the power to impose licence conditions or to publish regulations, which is why regulatory co-operation is necessary. Broadband licence obligations that give effect to targets are described in the examples below.

As an example, licence conditions for one of the licensees designated as universal service providers in South Africa in 2022 are captured in Box 20. The first licensee in this case is Sentech SOC Ltd, which is state-owned; the second licensee, Rain Networks Pty Ltd, is privately owned[46]. South Africa has a separate fund but the regulatory authority nonetheless provided support for universal access and service goals.

[46] 45773gen764.pdf (www.gov.za)

Box 20: Examples of universal service obligations (USOs) in licences in South Africa

(1) USO for Sentech SOC Ltd

1. PROVISION OF LAN TO CET COLLEGES

1.1. The Licensee shall implement a LAN for sixty-three (63) CET college sites, consisting of nine (9) CET college head offices and fifty-four (54) CLCs, as allocated by the Authority, over a period of three (3) years from the effective date.

1.2. The Licensee must provide a Rollout Plan, devised in conjunction with the Access Provider, and that plan must be approved by the Authority.

1.3. A copy of the Service Level Agreement between the Licensee and the Access Provider must be filed with the Authority within sixty (60) days after both Licensee's and Access provider's obligations are published in the Notice, for record-keeping purposes.

1.4. Each of the college sites must receive support from the Licensee for the duration of the support period.

2. STANDARDS AND SPECIFICATIONS FOR THE OBLIGATIONS

2.1. The specifications and hardware required for the LAN managed services solution to the CLC/CET college sites are listed in **Annexure B**.

2.2. The Licensee must provide the hardware and software as specified in Annexure B. The specifications listed are not brand specific.

2.3. The installation of the LAN must be done by the Licensee.

2.4. The Licensee shall provide a LAN managed services solution as specified under Annexure B per CLC/CET college site for the duration of the support period.

2.5. The Licensee shall maintain the provision of the LAN for the duration of its service licence period.

2.6. The Licensee shall bear the obligation to resolve any hardware or software maintenance and repair issues with regards to the implemented solution for the duration of the support period.

2.7. The Licensee shall bear the obligation to transfer skills related to maintenance and support of the implemented solution during the support period to two (2) ICT support staff from each of the nine (9) CET colleges and fifty-four (54) CLCs.

2.8. The speed of the backbone portion of the LAN must be no less than 10 Gbps.

(2) USO for Rain

1. PROVISION OF CONNECTIVITY TO COMMUNITY EDUCATION AND TRAINING COLLEGES ("CETs") AND COMMUNITY LEARNING CENTRES ("CLCs").

1.1. The Licensee shall provide connectivity to sixty-three (63) CET college sites, consisting of nine (9) CET college head offices and fifty-four (54) Community Learning Centres ("CLCs"), allocated by the Authority, over a period of three (3) years.

1.2. The Licensee must provide a Rollout Plan, devised in conjunction with Sentech, subject to approval by the Authority.

1.3. A copy of the Service Level Agreement must be filed with the Authority, for record-keeping purposes, within sixty (60) days after the USAOs for both the Licensee and Sentech have been published in the Notice.

1.4. The Licensee shall commence implementation of connectivity as of the effective date, subject to the allocation of CET college sites by the Authority.

1.5. The Licensee must complete connectivity to sixty-three (63) CET college sites as allocated, within three (3) years from the effective date.

1.6. The Licensee shall maintain connectivity for the duration of its service licence period.

1.7. Failure to comply with any of these requirements will be regarded as non-compliance with Licensee's the USAO requirements.

2. STANDARDS AND SPECIFICATIONS FOR THE USAOs.

2.1. The connectivity must be at a speed of no less than 20 Mbps.

2.2. The bandwidth will be capped at 100 gigabytes per month for the duration of the licence, per CET college site, starting from the implementation date.

2.3.1. provide Internet connectivity to all nine (9) CET college head offices and fifty-four (54) CLC sites via suitable connectivity;

2.3.2. provide dedicated connectivity between the nine (9) CET head offices and the DHET Head Office;

2.3.3. interconnect all nine (9) CET colleges to each other, provincially and nationally, via suitable technology; and

2.3.4. provide Wi-Fi hot spots for public access within each of the sixty-three (63) CET college sites.

Source: Electronic Communications Act: Sentech SOC Limited Universal Service and Access Licence Obligations (www.gov.za) and www.gov.za/sites/default/files/gcis_document/202201/45773gen764.pdf

In the United Kingdom although there is no fund, OFCOM, the regulatory authority, may create a fund. To date, however, it has relied on a range of different strategies to help close the digital divide and provide high-quality mobile broadband. Currently, the United Kingdom has around 99 per cent of premises covered by 4G and 93 per cent by 4G geographic coverage[47]. Despite having no fund, the United Kingdom approach to universal service obligations (USOs) is outlined in Box 21. In the SADC region, a fund could be used in conjunction with universal service obligations, to supplement the shortfall referred to below, as an example of regulatory intervention to support UAS goals which are not financial in nature.

[47] Taken from Connected Nations update, December 2022. For 5G coverage, this is based on the very high and high confidence intervals. Work to validate MNO new 5G predictions remains ongoing. Universal Service: The UK Experience (itu.int) and Connected Nations 2023 - UK report (ofcom.org.uk)

Box 21: The conditions imposed on universal service providers in the United Kingdom

The universal service obligations imposed on British Telecommunications plc (BT) which operates nationally in the United Kingdom, and KCOM Group Limited, which operates in Hull are both referred to as the universal service providers and give effect to the OFCOM promise that everyone has the right to request access to a minimum set of communications services at affordable prices[1].

The services that must be provided by them have been set out by the government in legislation. The Electronic Communications (Universal Service) (Broadband) Order 2018[2] creates a broadband universal service obligation, to give homes and businesses the right to request a decent and affordable broadband connection. Schedule 1 to this law provides the specification for the obligation which is set out in Figure 17.

Figure 17: Specification for minimum broadband universal service obligations in the United Kingdom

Broadband universal service: specification

1. Subject to paragraph 2, affordable broadband connections and services must be provided throughout the United Kingdom with all the following characteristics—

(a) a download sync speed of at least 10 megabits per second;

(b) an upload sync speed of at least 1 megabit per second;

(c) a contention ratio of no higher than 50:1;

(d) latency which is capable of allowing the end-user to make and receive voice calls over the connection effectively;

(e) the capability to allow data usage of at least 100 gigabytes per month.

Source: Schedule 1 to the OFCOM Electronic Communications (Universal Service) (Broadband) Order, 2018

1 Universal service obligations (broadband and telephony) - Ofcom
2 The Electronic Communications (Universal Service) (Broadband) Order 2018 (legislation.gov.uk)

The types of conditions imposed on BT and KCOM Group Limited are set out in Figure 18[1].

Figure 18: Licence conditions to ensure universal service in broadband in the United Kingdom

Part 3: Conditions

Section 1: Conditions applicable to Telephony Services and Broadband Services

Conditions A.1 to A.4 – Provision of Telephony Services and Broadband Services

A.1 BT must provide one or both of the following upon request:

a) subject to Condition A.2, Telephony Services;
b) subject to Condition A.3, Broadband Services.

A.2 BT is required to provide Telephony Services where the request in respect of the Telephony Services is reasonable.

A.3 Subject to the Conditions set out in Section 2, BT is required to provide Broadband Services where all of the following criteria are met:

a) the Broadband Connection requested is to a fixed location which is a Premises;
b) Alternative Broadband Services at a price less than, or equal to, the Eligibility Threshold:
   (i) are not available to that location; and
   (ii) will not be made available to that location through a publicly-funded intervention within the period of one year beginning with the date on which the Request is made;
c) the provision of the Broadband Connection requested:
   (i) will cost no more than £3,400 excluding VAT; or
   (ii) will cost more than £3,400 excluding VAT, but any Excess Costs will be paid by the USO Customer.

A.4 BT must ensure that its Electronic Communications Networks are installed, kept installed and run for the purpose of providing Broadband Services and/or Telephony Services.

Source: Unofficial consolidated version of the universal service conditions and directions (ofcom.org.uk)

[1] Telephony universal service conditions (ofcom.org.uk)

The other strategies used to increase mobile broadband coverage are set out in Figure 19.

Figure 19: OFCOM strategies to increase mobile broadband coverage

1. **Competitive markets:** Market competition remains the default first preference for expanding broadband coverage for affordable services within the UK with simple licensing, affordable spectrum, and pro-consumer switching policies. In this context, mobile network operators have already reached 48-64% of premises outdoors with 5G coverage.[1]
2. **Targeted use of coverage obligations:** Coverage obligations have been amended into *some* spectrum licences for the licence holder to provide and then maintain a network capable of providing the relevant service to a set universality target.
3. **Shared Rural Network:** Agreed in 2020 between the Government and four mobile network operators, includes 4G coverage obligations to 88% of the landmass by 30 June 2024 and 90% by 30 June 2026.

Yet another alternative to using the fund at all, or as a non-financial supplement to the fund, can be found in Ireland, where a universal access and service provider is appointed to address all universal access and service requirements (see Box 22).

Box 22: Appointing a universal access and service provider

In Ireland, universal service designations are clear. One or two operators are appointed to provide universal service, which is defined in terms of type of service, area of service and usually, quality of service, referred to as universal service obligations. The obligation endures for a specified period of time unless or until service of the same type is generally available in the relevant area.

While Ireland may be considered to be vastly different in terms of size and stage of development to almost all SADC countries, this is nonetheless an interesting proposition and reflects how universal service was first provided some decades ago and usually prior to liberalization.

In Ireland, the largest operator or the operator with the largest market share of service can be required to provide services that are otherwise not commercially available. In the case of voice, ComReg, the Irish regulatory authority, consulted on a USO for fixed line voice services as recently as June 2023[1], despite there being nationwide coverage by mobile and (it was argued) voice substitutes such as voice-over-Internet-protocol (VOIP) and over-the-top services (OTTs).

Factors such as whether or not there were services in the area even if not to the requesting consumer, or an existing connection even if not at the required quality, were relevant to the USO. In addition, where a request would effectively result in a new connection, if the cost to establish that connection exceeds EUR 7 000 then the request can be regarded as not commercially reasonable and refused.

Various other factors were considered as part of a regulatory impact assessment including the possible or likely effect on competition in the market. As of April 2024, the consultation was ongoing.

[1] RTC and further consultation 5.05.23 (comreg.ie)

A further option (discussed in more detail in section 6.6 below as it is financial in nature and would require fund participation) is to consider using a fund to subsidize a UAS provider, or, if the market requires it, two providers, in relation to a defined project such as a national broadband backbone or transmission network, or backhaul from a cable landing station.

Government contributions

Direct financial contributions to funds by governments are generally limited. However, other and indirect non-financial contributions by governments could be made which would not directly impact the central budget but which would be valuable to licensees and thereby assist funds to achieve the goals of the fund, such as:

- simplified and affordable permitting processes;

- reasonably priced site leases;
- access to government infrastructure (for example, to use as high sites);
- enabling cross-cutting initiatives in education and health in particular, by training teachers and health workers to use technology and then how to use it to obtain remote services;
- tax reductions applied as incentives to encourage local manufacturing of network elements or devices;
- reductions in import duties or taxes on licensees.

Other indirect contributions are listed in Box 23.

Box 23: Indirect (non-financial) contributions by government and/or regulatory authorities

Apart from aligning initiatives in all sectors to achieve common national goals including SDGs[1] (with the benefits of economies of scale and scope), financial benefits can be conferred on funds in the following ways:

- transferring any remaining budget from the regulator to the fund at the end of every year (this already happens in Lesotho, for example);
- concluding loans with aid organizations on behalf of the fund, where the government acts as surety (as has been the case in Tanzania);
- approaching donors for support either as finance or in kind – such as sponsoring initiatives to increase digital literacy, or create digital content (as has been the case in the Democratic Repuplic of the Congo and Lesotho);
- imposing coverage obligations on licensees that are awarded high demand spectrum (as has happened in Zambia);
- ensuring that licensees that do not pay their universal service levies face appropriate penalties (at a regulatory level in each country);
- aggregating demand from government institutions such as police stations, clinics, post offices, administrative offices and schools in outlying areas to incentivize network rollout (with payment) (as proposed in South Africa);
- entering into regional co-operation agreements for cross-border connectivity, thus creating backbone infrastructure from which operators can build on an open access basis (at CRASA level).

[1] Take Action for the Sustainable Development Goals - United Nations Sustainable Development

The case study in Box 24 reflects the ways in which goals which would typically be associated with universal access and service may be achieved, at least in part, by other initiatives.

Box 24: Case study – Democratic Republic of the Congo

The situation

The Democratic Republic of the Congo lacks coverage and penetration – there are still numerous white zones (defined in the 2011 Toolkit as areas where no broadband infrastructure exists and none is likely to be developed in the near future[1]). In addition to historical and current investment issues associated with country risk, the geographical issues, including vast forests and mountains, coupled with a lack of power (less than 30 per cent of the country is connected to power) and ongoing conflict make it a challenge.

Under-served areas exist in towns and more rural areas and this is a substantial issue since at least 80 per cent of the population lives in rural areas. Affordability is also an issue particularly when considering the recommended price for broadband at entry level ought not to exceed 2 per cent of gross annual income per capital. At least 40 per cent of the population live in poverty. 2G is sitting at 75 per cent of the total number of subscribers, with 3G at two-thirds of that and 4G even lower. Total fibre rollout is about 6 000 km although some operators are working on this, aiming to rollout 50 000 km with at least 50 million subscribers connected to 4G. Full broadband seems very far away.

The fund is not operational as government has not yet decided how the receipts from operators (levies) should be disbursed. However, as the solutions described below suggest, some effort is being made by government through the regulatory authority and directly, to achieve universal service and access.

Possible solutions:

- *Enforce infrastructure-sharing provisions* – these are imperative to support small and new entrants and would help to support universal access and service initiatives.
- *Adjust licence fees for operators who opt to rollout in under-served areas* – these operator licence fees and contributions to the fund could be reduced (this is a model that has been adopted in Brazil).
- *Impose obligations when awarding spectrum* – a mobile network operator acquired 58 MHz of additional spectrum in the 900 MHz, 1800 MHz, 2100 MHz, and 2600 MHz bands for USD 42 million. Had the fund been in operation, this would have presented an opportunity to put funds to work in providing universal access and service, and to oblige the MNO to commit to various coverage and connectivity obligations[2].

As in other countries, there are areas of growth and opportunities.

- The West African Festoon System (WAFS) project is a regional broadband backhaul project with some neighbouring countries to connect to very high bandwidth and the SAT3 submarine cable.
- The CAB (Central African Backbone) project is being funded by the World Bank.

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1 This is Box 3.5 of the 2011 Toolkit.
2 Democratic Republic of the Congo - Telecoms, Mobile and (globenewswire.com)

Box 24: Case study – Democratic Republic of the Congo (Continued)

Both of these initiatives suggest that regional collaboration and co-ordination are the most likely routes to successfully connecting developing countries. However, as operators will be looking for return on investment, regulatory incentives would need to be put in place to ensure under-served areas are not left aside. This would require careful management of the funds.

In July 2021, MNOs, the Ministry of Posts, Telecommunications, New Technology and Communications; and the regulatory authority, supported by the GSMA, launched the We Care initiative aimed to accelerate and amplify the positive impact of mobile and digital services for the people and economy of the Democratic Republic of the Congo and to develop close public-private collaboration. A number of public-private collaboration initiatives are planned including:

- The launch of an annual report that shares key sector indicators on mobile sector taxation.
- The publication of a mobile coverage map of the country to inform decision-making on improving connectivity in rural areas. The map, developed by GSMA with support from the United Kingdom government) is available here: Mobile Coverage Maps.
- The activation of a local mobile association in the Democratic Republic of the Congo. This organization will find common solutions to advance inclusive digital transformation.
- The establishment of a framework for regular public-private dialogue between mobile operators, government and regulator to overcome the challenges of the mobile sector and accelerate digital inclusion.[1]

[1] GSMA | GSMA and Mobile Operators Launch "We Care" in DRC - Newsroom

6 Choosing projects

6.1 Identifying the projects to support: the early models

A decade ago, the criteria for choosing universal access and service projects were as simple as identifying unserved or under-served communities. Other approaches considered at that time are set out in Table 8 and may remain relevant, depending on the size of the fund, and the needs of the country. These criteria are often similar to the targets identified and defined in section 4. Projects graded as moderate or low under cost and administrative complexity to implement are more attractive than those graded as high. Projects graded as high involve more effort, may be more risky, and are likely to need more funding.

Table 8: Early approaches to deciding on a project

Approach	Cost and administrative complexity to implement	Effectiveness (an outcomes-based assessment)	Effectiveness (ICT)
Geographic targeting	Low	Low – Moderate	High
Self-selection targeting	Low	High	Low – Moderate
Means test targeting	High	High	Moderate
Proxy means test targeting	Moderate	Moderate	Moderate
Community-based targeting	Moderate – High	Moderate	High

Source: 2011 Toolkit

The term developmental in relation to objectives became the measurement of the likely effect of a project on the country's socio-economic objectives, which required consideration of the intended beneficiaries of the project, the impact on them, the analysis and quantification of benefits, and the project sustainability. Projects that were most likely to succeed under this model were those that were commercially successful as well as successful developmentally. This meant an equal focus on demand and need, as on supply and socio-economic impact. If the focus was not equal then the project was unlikely to be sustainable. The same approach could be used today as a starting point, but the task is now more complex.

6.2 Identifying the project to support: current issues

The digital ecosystem can be described as having the following elements:

- access (infrastructure, connectivity);
- adoption (strategic institutions, digital literacy, local content, affordability); and
- value-added (innovation and applications)[48].

[48] Adapted from the ITU Universal Service Financing Efficiency Toolkit.

Some of the issues to be considered to determine the choice of project in this context will likely include:

- an evaluation of how much money the fund has to budget for both new access and adoption projects and support of existing projects;
- how to continue or to add funding for other infrastructure including for example, electricity and renewable energy (solar panels);
- how and whether to connect strategic institutions not connected by government;
- whether to continue funding services on an ongoing basis in rural areas where there may be demand, but there is limited (if any) disposable income and this affects adoption and affordability; and
- whether there is funding available for adoption initiatives such as developing local content and improving digital literacy.

Examples of projects that address these elements are set out in Table 9.

Table 9: Project types to choose from

Pillar / programme	Target	Project examples
Connectivity	**Infrastructure, devices and equipment**	• Municipal networks, with a focus on rural and remote areas. • Community networks, with a focus on rural and remote areas. • Network extension and upgrades in rural, remote and underserviced areas. • Subsidies reducing the cost of devices. • Regulatory and policy interventions.
Adoption	**Strategic public institutions**	• School, library, university connectivity. • Hospital and clinic connectivity. • Project-based awareness, training and capacity building programmes. • Regulatory and policy interventions.
	Digital literacy	• Community-based awareness, training and capacity building programmes. • School, library, university connectivity.
	Relevance	• Support for development of Internet-based essential services. • Translation/production of content in local languages. • Support for local start-up ecosystems in order to develop locally relevant applications. • Regulatory and policy interventions.
	Affordability	• e-rate schemes for educational institutions. • Lifeline schemes for low-income users. • Demand aggregation for devices. • Subsidies reducing the cost of devices. • Recycling of useable e-waste (refurbished devices and phones). • Regulatory and policy interventions.

Table 9: Project types to choose from (continued)

Pillar / programme	Target	Project examples
Innovation	**SME development**	• Support incubation hubs and accelerators, especially for women and youth. • Grow local manufacturing of parts of the value chain. • SME digitalization. • Regulatory and policy interventions.
	Research and development	• Fund R&D at university level. • Support incubation hubs and accelerators, especially for women and youth. • Facilitate the obtaining of patents. • Regulatory and policy interventions.
Inclusion	**Women and girls, persons with disabilities and specific needs, older persons and other vulnerable groups of persons**	• Must be the primary target of all programmes/ pillars, with preference given to projects that address the gender gap, disability gap and other inclusion-related gaps (e.g. refugees and displaced persons).

Source: ITU Universal Service Financing Efficiency Toolkit, Policy and Regulation (itu.int)

Some of the criteria used at present are specific to priorities (current need), rather than aspiring to any other goals such as UMC, and Member States may not be in a position to direct the choice of project with a view to achieving the 2030 SDGs because of more pressing matters. The characteristics most commonly used for project selection in SADC at the time of revising the 2011 Toolkit are set out in Table 10 below.

Table 10: Characteristics influencing choice of project for support by a fund

Characteristic	Country	Detail
Number of inhabitants in a community	Botswana	<5 000
	Lesotho	Unspecified
	Mauritius	<500
	Mozambique	>500
	South Africa	>2 000 (voice) and >10 000 (data)
Geographical location (e.g. rural, unserved)	Angola, Botswana, Comoros, Dem. Rep. of the Congo, Malawi, Tanzania	Rural areas are invariably unserved/ under-served, where services and devices are unaffordable
	South Africa	Within 1 km (voice) and 2 km (data)

Table 10: Characteristics influencing choice of project for support by a fund (continued)

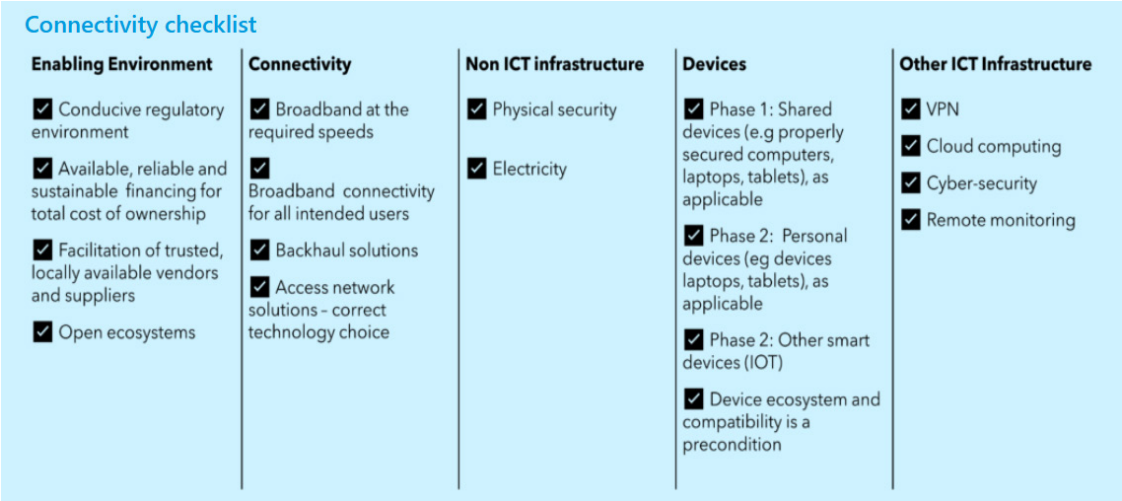
Characteristic	Country	Detail
Presence of infrastructure or government facility	Botswana, Lesotho, Malawi, Namibia[49], Tanzania, Zimbabwe	Post office, police station, public school, other
Electricity	Malawi, Tanzania, Zambia	Some other countries try to assist with connection to the grid/solar
Government instruction	Dem Rep of the Congo, Malawi, Mozambique, Mauritius, South Africa, Tanzania, Zambia	Directed to connect an area/institution. In South Africa, national policy and regulatory obligation determines the area/service
Educational institution not connected	Comoros, Lesotho, Mozambique, South Africa, Tanzania, Zimbabwe	While schools in Comoros are often within a coverage area, they cannot afford service; Lesotho focuses on devices and connectivity for high schools; Mozambique focuses on Wi-Fi for higher education institutions
Network or service issues	Comoros	80% coverage, because it is an island but poor QoS
	Eswatini	BTS to be upgraded to 4G
	Lesotho	All BTS to be capable of being shared
	Mauritius	QOS and speed to be improved

6.3 Assessing projects with a view to achieving the revised targets

Section 4 sets out targets that are related to the 2030 SDGs. To reach these aspirational targets may be challenging for several countries, but the checklist included in Figure 20 may assist in reviewing the status quo for project selection.

[49] Namibia is included here for completeness, but the fund is not operational at present. This information was provided during an interview, on the basis that if it was operational, this is how the fund would approach projects.

Figure 20: Checklist for connectivity



Source: ITU Universal Service Financing Efficiency Toolkit, Policy and Regulation (itu.int)

Building on the suggestions for the choice of project (or target), two checklists from the 2011 Toolkit have been merged in Table 11. The answers should be reviewed to assess whether or not:

- the country is on track to achieving UMC; and
- the project choice is likely to promote UMC.

Table 11: Choosing projects or targeting issues (and will this achieve universal and meaningful connectivity?)

Early objectives	Rationale
Developmental rationale	
Vision and objective	What are the core ideas, objectives and key outputs of the project? Describe the before/after picture (e.g. X villages with no access at project inception will have MPCCs, Y institutions will have high speed broadband access to the Internet through 5 regional POPs).
Development focus	Is the project aligned with developmental goals set out in policy or other instruments in the country? Can the project influence the broader developmental agendas within the ICT sector, or affected sectors (e.g. health, education)? Will the execution of the project promote sustainable and equitable development?
Project beneficiaries	Is the project targeted at specific communities, income groups, age groups, gender? How will the project meet the needs and demands of its targeted beneficiaries?
Nature of benefits	What is the primary nature of the benefits of the project? Will the project have an impact on working conditions, employment or the quality of life? What secondary or indirect impacts will the project have (e.g. better service delivery)?
Distribution of benefits	What special benefits will the low income, and other income groups enjoy? How much local participation does the project encourage – design? Implementation? Ownership?

Table 11: Choosing projects or targeting issues (and will this achieve universal and meaningful connectivity?) (continued)

Early objectives	Rationale
Gender considerations	Does the project design consider different gender roles, perspectives, interests and priorities? Will research data, demand and expected impacts be reported according to gender? Does the capacity building component of the project take into account women and girls? What is the specific value of the services/products arising from the project on women?
Commercial rationale	
User needs and demands	Has the development rationale of the project been confirmed through a baseline study which sets out the demand, and sample/ references for the project services? Has detailed research been conducted to support the definition of beneficiaries and target groups?
Services and prices	How will the project outputs be paid for? How will the retail process relate to the cost of supply? Subsidy levels? If there is a different between cost and price, what is the rationale? How long is the situation expected to persist? Is it an issue of regulation or affordability?
Affordability	Has market research been conducted on affordability and willingness to pay? What are consumers' alternatives in the absence of the project?
Costs	Does the project deliver its objectives in the most cost-effective manner possible?
Policy and regulation	Are the prices to be charged regulated? Are there any regulatory impediments that constrain the project from delivering outcomes in the most cost-effective manner (licensing, interconnection, infrastructure sharing, etc.)? Are there regulatory impediments that constrain the project from delivering outcomes in a sustainable manner (licensing, interconnection, price regulation, etc.)?

Source: Adapted from two checklists included in the 2011 Toolkit

Other projects may now be deserving of support since new technologies offer new solutions to old problems (see Box 25). The commercial and developmental factors in Table 12 could be applied to specific offerings to determine whether deployment of the new technology could assist in moving towards the 2030 targets. However, as a general rule, projects should not be chosen based on a technology.

Box 25: Broadband satellite solutions

In late 2023,[1] the question of satellite broadband being subsidized from the fund was considered by the United States regulatory authority, the Federal Communications Commission (FCC). Satellite has received little to no support from government subsidy programmes to provide broadband in high-cost areas. The low-earth orbiting (LEO) broadband service providers plus increased capacity from geostationary orbiting (GEO) satellite providers suggest that satellite could, in the absence of subsidized competitors, become a key player in the universal service programme in providing service where terrestrial broadband does not exist. It could provide additional competition across rural America, driving down subsidies.

Rural areas in the SADC region could likewise benefit, but this illustrates the need for the fund to keep up to date with technological changes and new market entrants. New technologies or new entrants may well be able to address areas or gaps identified by the fund. In a report on a school project supported by the fund in Kenya[2], it was noted that, "*Satellite connectivity can be explored in extreme cases where schools are very remote or in insecure areas, and where there is a very strong case to support other economic activities. In such cases, an in-depth needs assessment involving community stakeholders must be carried out.*"

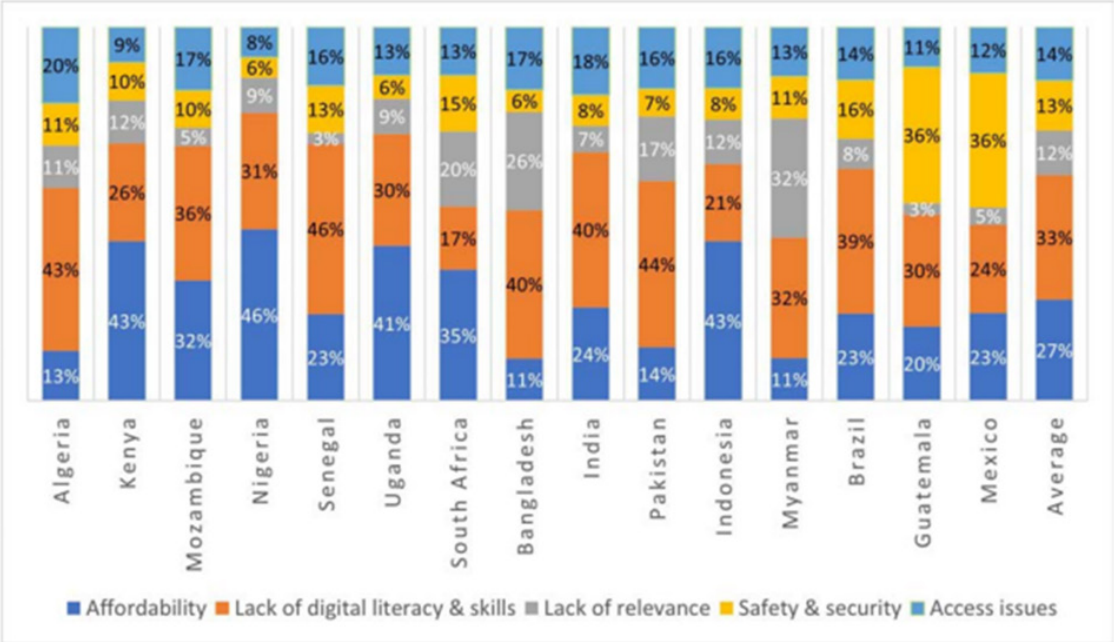
1 Should Satellite Broadband Be Included in Universal Service Subsidy Programs? (upenn.edu)
2 Broadband connectivity for schools in Kenya funded by the Universal Service Fund - Assessment report - ITU

Device subsidization may cut across more than one project as it can support access as well as adoption (and specifically affordability). Studies have shown that in addition to coverage gaps, the digital divide is also the product of an adoption gap (also referred to as a demand gap) which arises when individuals do not use the Internet even when mobile network coverage exists.[50] Meaningful connectivity has been interpreted to mean that citizens can access and use the Internet. The fact that many people do not adopt mobile broadband even when it is available underscores that closing the digital divide is not simply a matter of extending network coverage, but that citizens need to appreciate and understand the benefits of the Internet in order to use it and thus increase adoption and demand.

Policy-makers must also understand the other potential barriers to adoption. A GSMA study of mobile users in 2019-20 found that for those who did not use mobile Internet, the most frequently cited reasons included affordability, lack of skills, lack of relevance, safety and security and access.[51] This reflects barriers that exist on the supply as well as on the demand side. Some of the different reasons for not using the Internet are set out in Figure 21.

50 ITU: The State of Broadband: People-Centred Approaches for Universal Broadband
51 Working Group Report on Smartphone Access Strategies Towards Universal Smartphone Access (broadbandcommission.org)

Figure 21: Reasons for not using the Internet, 2019-2020



Source: GSMA: The state of mobile Internet connectivity 2021

The Broadband Commission's Working Group Report has devised a five-point plan to improve smartphone ownership and thus increase adoption, reflected in Figure 22.

Figure 22: A 5-point plan for smartphone ownership

Source: broadbandcommission.org

Action item 4 is expanded on further by the Broadband Commission[52] which suggests that funds might be used to subsidize devices as well as building higher-bandwidth infrastructures and ensuring better mobile coverage. Without affordable devices to access the Internet, higher coverage will not necessarily improve connectivity, so the fund may need to be used to provide device subsidies to communities that need them the most and so, to expand mobile Internet usage (actual connectivity)[53], as it was done in Malaysia and Pakistan, and as described in Box 26.

Box 26: Using the fund to subsidize smartphone acquisition

Malaysia: in 2014, the Government of Malaysia launched its Smart Device Subsidy initiative to use universal service funds to provide a selection of smartphones at reduced prices to communities in rural areas. Eligible individuals received a subsidy of RM 250 (USD 56) and a free Internet subscription for one year.

Pakistan: the Government of Pakistan used their USF to enable 30 000 working women from low-income households to buy smartphones to improve digital inclusion. The smartphones provided in this programme were preloaded with a balance of Rs. 250 (USD 1.9) per month on the phones. The government also used this programme to disburse income support through m-money and e-government.

6.4 Sustainability

Sustainability in the context of universal access and universal service means that once funds have been disbursed for a designated project, the project can support itself once the fund withdraws or terminates financial support for that project. This assessment should include both financial (or economic) and social factors. Sustainability in the context of universal access and service could also be dependent on whether or not licensees comply with their UAS obligations.

[52] Working Group Report on Smartphone Access Strategies Towards Universal Smartphone Access (broadbandcommission.org).
[53] 2021 Affordability Report - Alliance for Affordable Internet (a4ai.org).

Box 27: Giving effect to sustainability in Angola

Angola noted that it had yet to identify methods of obliging licensees to fulfil their universal service obligations and invited suggestions on legal methods of enforcement. This suggests that sustainability is challenging – possibly because there are three entities involved in universal service namely the regulatory authority, INACOM, the fund manager, Angola Communications Development Support Fund (FADCOM), and the government, but only the government may approve and implement a project, which it does in most cases by identifying one operator to carry out that project (usually the state-owned operator). The project cannot be fulfilled if other operators are not required to participate. If legislation does not enable the fund (either through the regulatory authority or itself) to suggest or require regulatory obligations to be imposed on licensees that will give effect to UAS goals, and if there is no incentive to support or recourse if they do not support a UAS project, then sustainability fails at the first hurdle.

Sustainability generally refers to the ability to maintain or support a process continuously over time. In 2024, the concept also includes the imperative to ensure that – for example – universal access and service initiatives are not harmful to the environment or deplete natural resources and can therefore (at least in some cases) support global, long-term environmental balance. The reference to balance encompasses the need to fulfil the needs of future generations at the same time as making use of natural resources and engaging socially.

There are characteristics in common between the two definitions although at this stage only the fund in Lesotho has considered the 'going green' environmental agenda to which the government has committed. Solar and alternative energy solutions in other Member States are generally considered as ancillary to the primary concern of connectivity.

Good practice in selecting a project for support includes an assessment of a project's likely sustainability. Projects that are initiated by an invitation to bid for a subsidy, for example, must be carefully scoped in the project documents and contracts to ensure clarity on what is being funded, by whom, and for how long. A project should not be approved if the chances of it being sustainable are low or non-existent. To discern this, a demand-supply evaluation should be carried at the site of the proposed project, or a project should only be proposed if it has met criteria for demand and if the likelihood of supply (that a licensee will provide service at an affordable rate) is high.

Determining whether or not the project is sustainable once it has been launched, requires ongoing monitoring. Monitoring activity – after implementation –has a cost and this needs to be factored into the project budget or into the human resources budget for the fund.

In recent years, monitoring has helped to determine the support for projects on the grounds of sustainability and when to transfer the support (in the form of operating costs) for the project to government or a relevant department. In Botswana, for example, the fund seeks to conclude contracts with the government in relation to specific projects such as connectivity for schools, which is expected to be supported by the Ministry of Education after a period of time agreed to in the contract.

Projects should be designed using at least some of the indicators in Box 28.

Box 28: Project structuring essentials

Checklist:

- There are measurable objectives for the project, for which indicators can be defined.
- There is a structured set of indicators, covering outputs of network or services provided in terms of the project and their impact on identified beneficiaries.
- Provision has been made for collecting data and managing project records so that the data required for indicators is compatible with existing statistics, and available at reasonable cost (where the funder is not the regulator this is one area where partnerships become useful, since this will require coordination between the entities to get data from operators if not specified in service level agreements (SLAs) signed at project commencement).
- Institutional arrangements are in place for gathering, analysing, and reporting project data, and for investing in capacity building, to sustain the monitoring and evaluation service (where funds are separate from regulators this may require coordination between the entities to get data from operators).
- Proposals for the ways in which monitoring and evaluation findings will be fed back to stakeholders, financiers, and other affected parties, have been considered and discussed with those parties.

Source: Adapted from the ITU Universal Service Financing Efficiency Toolkit.

6.5 Costing the project

Broadband projects can typically be divided into three types:

- access (infrastructure, connectivity, regulation);
- adoption (strategic institutions, digital literacy, local content, affordability, regulation); and
- value-added (innovation, applications, regulation and forbearance).

Choosing a project entails looking at what it might cost to implement, how it might be funded, what type of project will be funded, and for how long. One seemingly common question in the SADC Member States is whether or not a project supported by the fund in some way (for example, capital expenditure (capex) for construction, funding for device deployment, or a subsidy for a project with an agreed scope), could or should be deployed when it is unlikely to or would not get support from government agencies, ministries, or licensees? In other words, who should be responsible for the project if a fund is no longer involved, assuming the project is unable by that time to finance itself and despite having met the sustainability criteria initially?

There can also be a cost attached to sustainability, as discussed in section 6.4. For example, in the case where capex has been provided by a fund, network infrastructure has been deployed (whether fixed or mobile), and services provided to an institution for shared access or more generally to those with their own devices:

(a) will a licensee receive a return on investment that will enable it to continue to provide services; or
(b) could the community or institution (in some cases, both) begin to pay for the services without support from the fund?

If the answer to either one is "no", then the project will need ongoing support from the fund or other sources in order to be sustainable. The criteria used to identify projects could and should therefore – at the point of review – include the likely cost to ensure sustainability. The following two examples illustrate issues relevant to an assessment of sustainability:

- Mauritius, which also has the highest per capita income of all Member States along with South Africa[54], provides financial support for projects for the longest period.
- Malawi (and possibly other Member States with similar issues) is unable to guarantee financial support for any project for any particular period of time because it experiences currency devaluations which decrease funds available to support projects even where they are within budget.

The type of project chosen for financial support also depends on national priorities, the scope of the fund in terms of projects it can cover (in law), available money for financing projects, and market and technological developments in the country. A fund may need to adopt a different approach to each of the three types of broadband projects.

6.6 Subsidies

Subsidies are direct contributions, tax breaks and other special assistance that governments can provide businesses to offset operating costs over a lengthy period[55]. They can be awarded using, for example, reverse subsidy auctions where the bidder bids on the lowest amount of subsidy funding.

Once relevant programmes (groups of projects) have been identified, one of the challenges faced by financiers and funds relates to determining which projects can or should be subsidized and what level of subsidy is necessary. Subsidies are provided to stimulate investment where it would otherwise prove too costly for licensees, such as closing the true access gap (see section 2.2). A cost-based approach can assist funds to cost the gap that the subsidy should address. However, over time, and through experiences in other jurisdictions, it has become clear that the determination of this cost is not only complex, but not necessarily accurate either. The choice of the costing methodology to be used is important. Costing the gap and the possible subsidy is likely to require:

- public consultation;
- specialized accounting systems to be put in place by operators specifically for the purpose; and
- expertise within the fund in cost-modelling and costs analysis.

[54] Mauritius vs South Africa Economies: 61 Stats Compared (georank.org)
[55] The ITU Universal Service Financing Efficiency Toolkit.

Box 29: Notes on costing the true access gap

- The information asymmetry that exists between the fund and licensees can affect the final determination of cost and lead to inefficient financing of projects.
- A licensee has far better knowledge than the fund of the costs of its operations.
- Licensees could inflate costs in light of the potential subsidy that may result.
- Different projects will have different costs and cost structures.
- A project that is related to the rolling out of infrastructure should be costed differently from a project focussing on schools of education institutions, including projects such as putting computer labs in schools.
- The cost assumptions, technology deployment choices and revenue estimates will differ from project to project and from country to country.
- In conducting an initial cost analysis, it is useful to bear in mind that indicative pricing calculated by the fund can be confirmed through bidding or other project and subsidy allocation processes.

Cost analysis will require, as a minimum:

- Market data below national level, preferably on the area in which the service is to be provided.
- ICT connectivity and access data penetration on a micro (not national) basis (which the fund should have as a result of deploying the indicators suggested by the UN in relation to universal and meaningful connectivity).
- In this context, connectivity means mapping existing infrastructure and the distance to key nodes.
- Geographical information on the project terrain (mountains, swamps, forests, deserts) which will impact network planning and the costs of constructing a network, as well as the technology choice.
- Population centres and population (total population of the region, area, major population centres and levels of urbanization).

The general rules for awarding subsidies are that, in the context of funds, a subsidy should:

- be a one-off subsidy award;
- encourage cost savings and market growth;
- kick start a project or service with the objective of ultimately seeing the programme become commercially viable; and
- encourage service provision in regions where, without the subsidy, investors might otherwise have been reluctant to invest;
- be linked to optimal results;
- be designed to support cost-minimization incentives.

An auction should be conducted by the fund only after defining a service to be provided in an area, conducting the relevant demand studies, and issuing an invitation to eligible companies to compete for a subsidy to provide that service. The company bidding for the lowest subsidy wins and is paid the subsidy by the fund[56].

[56] Other factors to consider can be found at the following links: Policy and Regulation (itu.int); https://smallbusiness.chron.com/whats-difference-between-grant-subsidy-39285.html, and https://www.oecd.org/governance/procurement/toolbox/principlestools/

6.7 Other issues to be considered

Although SADC Member States may have committed to numerous policies and enumerated policy goals and targets for digital inclusion and transformation, the role of government in achieving these cannot be overstated, and the review notes that several members of CRASA regard this as being relevant to the success of the fund. It is also recognized by the African Union as being crucial to digital transformation across the continent (see Table 5 in section 4.3). Table 12 identifies some of the elements of what characterizes what works and what does not work in projects.

Table 12: Lessons learned

What does not work ✗	What works ✓
• Weak institutional frameworks • No autonomy over the fund • Insufficient resources within the fund to execute its mandate • No or vague targets • Ill-defined or no criteria for project selection • Projects for the deployment of infrastructure that do not take into account the whole ecosystem or the total cost of ownership or participation • Projects where sustainability has not been considered • No audits or evaluation • Political interference	• Clear and robust institutional frameworks including policy, law and regulation • Buy-in and support from the regulatory authority and government • Clearly defined but sufficiently flexible criteria for sources of funding • Autonomy of fund managers over the fund (collection and disbursement) • Effective fund administration (good governance, accountability and transparency) • Clearly defined selection criteria for projects and/or beneficiaries (evidence-based decisions using the most granular data available) • Ongoing monitoring and evaluation of projects • Regular reviews of the performance of the fund

A general checklist for reviewing projects is included here.

Box 30: Designing programmes and projects

In order for SADC Member States to use proactive best approaches to programme and project design, the following guidelines should be borne in mind:

- Financiers should encourage the development of 'bottom up' or hybrid projects that are initiated at the local community level; these projects should inform the design of universal access programmes.
- Funders should ensure transparency in programme and project design. Public consultation should be built into programme and project design to the extent practicable – this would require input from operators, community members, and equipment suppliers, other affected government departments and relevant institutions such as schools and clinics.
- Financiers, including fund administrators should learn from previous projects implemented in similar contexts and consider learnings from other funds in the region and in the world.
- Well-designed projects should adopt a 'total cost' approach and thus should consider basic criteria for the successful deployment of the project, even where they are not directly ICT related – such as electricity availability, rights of way, localization of content, and training and capacity building.
- Every project should have well defined project objectives and outcomes that are reflected in the performance indicators associated with it and captured in the service agreement and contract between the fund and the project implementer. These include quality of service requirements, quantities of the equipment or service, and other key indicators.
- Projects should be technology neutral – bidders should be empowered to select the technology that they will deploy as long as the technology meets quality of service requirements, as well as national spectrum and type approval regulations.
- Projects should not distort the market and must not create an exclusivity for the provider of the network or service.
- Project design should consider licence requirements and use licensing as an incentive where appropriate.
- Projects should ensure maximum accessibility – and thus should take into account the needs of all members of communities including persons with disabilities, even if the projects are not specifically targeted at this beneficiary group.[1]

[1] Consistent with the objectives of the Convention on the Rights of Persons With Disabilities.

Source: Box 3.6 of the 2011 Toolkit

7 Post-implementation activities

Universal access and services funds, like the other financial mechanisms, should be outcome-based. It is important for the fund to obtain a return on investments even if that return is social or socio-economic as opposed to financial. The role of the fund does not end at the allocation of monies – it must follow implementation, both monitoring and evaluating projects.

7.1 Monitoring and evaluation

Monitoring can be used to gather project data to highlight any changes in project implementation, for example, changes in technology, skills, or resources. The timing of this stage is important to allow for improvements or changes whilst project resources are still available. Progress is measured against identified targets and indicators[57].

The terms relevant to this section of the revised SADC toolkit are the following:

- **Monitoring**: the continuous assessment of project implementation. It is only through monitoring that actual or potential successes and problems can be easily and quickly identified – this enables the adjustment of the project or programme as may be required; and
- **Evaluation**: the periodic assessment of a programme or project relevance, performance, efficiency, and impact in relation to stated objectives. Evaluation occurs throughout the project and not just at the end. On-going evaluation enables fund managers to assess project impact early on and to identify risks or unintended consequences that might necessitate adjustments in project design. Ultimately it tests the validity of the design and whether alternative strategies may be relevant.

Evaluation is not merely an information-gathering activity. It is also important to disseminate and communicate evaluation results to key stakeholders and interested parties in a consistent format and to monitor and report observable trends.

Monitoring and evaluation can help strengthen project design for future projects, implementation, and stimulate partnership with project stakeholders, including:

- **Influencing decisions relating to market reform and the sector financing strategy** – relevant analysis from project and policy evaluation can highlight the outcomes of previous interventions (non-financial), for example the outcomes of regulation, of similar projects in other countries within the SADC region, or in countries with similar contexts, and the strengths and weaknesses of their implementation.
- **Improving project design** – it can lead to improvements in project design. In order for this to work, however, basic data needs to be collected on a regular basis, and baseline data should be available against which to measure progress.
- **Incorporating views of stakeholders** – ownership of project objectives and stakeholder buy-in will only arise from consultation, particularly in the ICT sector, which has diverse interests. This in turn increases accountability and encourages the sustainability of universal access projects. Objectives should be set and indicators selected in consultation with stakeholders, so that objectives and targets are shared. A reliable flow of information during implementation enables funders to keep track of progress and adjust operations to take account of actual implementation experience.

[57] https://www.itu.int/itu-d/reports/regulatory-market/2022/04/12/monitoring-and-evaluation/

7.2 Measuring the impact of a fund

One of the biggest risks for a fund is that the investment does not achieve the desired impact. In order to avoid this, in addition to carefully selecting the recipient, it is critical that the subsidy or grant is monitored effectively. This enables the early identification of issues and also promotes accountability by the recipient.[58]

There is the perception that funds in the SADC region have had mixed results. The range of reasons for this include corruption, appropriation of funds by central government for other purposes, poor management and lack of adequate institutional capacity. These conclusions appear to be drawn on the basis that so few projects have been successful (meaning that they are still operational); some funds have become insolvent; and in a very few cases, funds have not been disbursed.[59]

There may be other reasons why funds have not been successful, for example:

- The digital divide in the Africa region is largely driven by mobile and fixed network operators finding it unviable to deploy networks in rural areas.
- The lack of commercial viability across Africa (over 50 per cent of its population live in rural areas) is further compounded by the lack of supporting infrastructure such as electricity and the practice of imposing multiple taxes on mobile network operators in various countries.
- Government actions like taxing mobile devices and other telecommunications equipment.
- Definitions and policy goals are frequently vague which can lead to disputes or inaction.
- The independence of several funds is questionable.[60]

Where funds have had more success, such as in Japan,[61] Malaysia, and Pakistan,[62] the following factors were common:

- clear rules;
- effective public consultation;
- transparent processes;
- good governance.

7.3 Making improvements for the future

A framework for evaluating the impact and improving the performance of funds is set out in Figure 23.

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58 Adapted from the ITU Universal Service Financing Efficiency Toolkit.

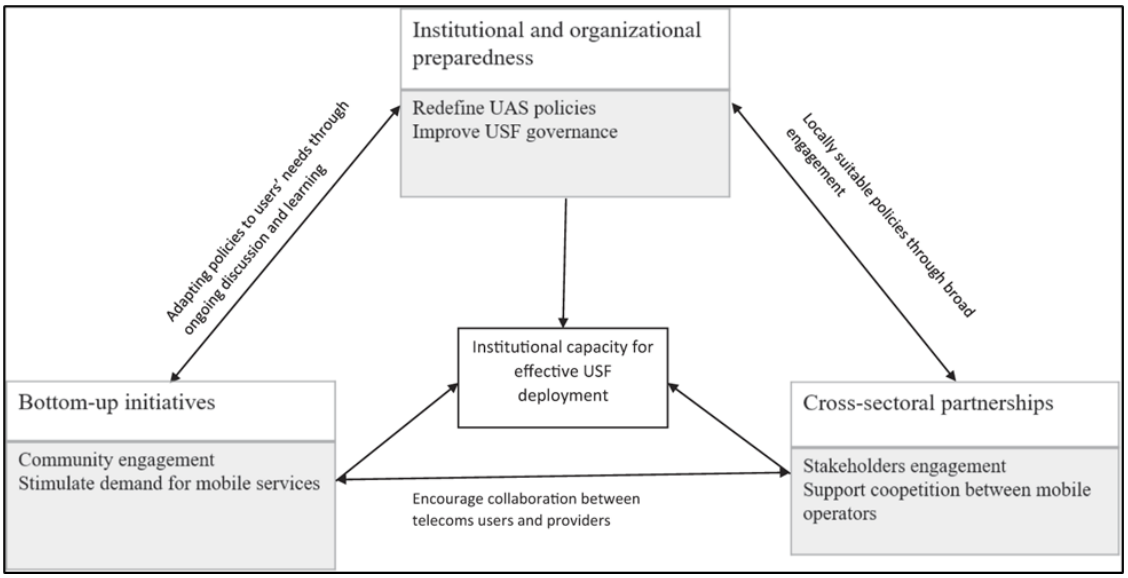
59 Source: Arakpogun, E.O., Whalley, J., Wanjiru, R., Elsahn, Z. and Kummitha, R.K.R. (2023), "Bridging the digital divide in Africa via universal service funds: an institutional theory perspective", *Information Technology & People*, Vol. 36 No. 8, pp. 126-154. https://doi.org/10.1108/ITP-01-2023-0042 (Bridging the digital divide in Africa via universal service funds: an institutional theory perspective | Emerald Insight)

60 The ITU Universal Service Financing Efficiency Toolkit.

61 www.itu.int/en/ITU-D/Digital-Inclusion/Documents/USF_final-en.pdf

62 Universal Access and Service Funds.pdf (unescap.org)

Figure 23: A framework for improving performance of funds



Source: Bridging the digital divide in Africa via universal service funds: an institutional theory perspective | Emerald Insight

There are other activities that are just as important as choosing and costing a project, with all of the associated complexity. These activities can not only add value to a project but assist a fund in carrying out its mandate more effectively.

- **Engage stakeholders**: Licensees are the most likely entities to know how to stimulate demand. Stakeholder engagement to invite suggestions on driving demand is therefore vital. Stakeholders may also have innovative solutions for funding. Infrastructure-sharing is one way of reducing the cost of network rollout, particularly by smaller operators, and stakeholders must be encouraged – or obliged by law – to provide access to their infrastructure on demand if the request is technically viable. Stakeholders include equipment vendors, many of which are multinationals. They may also have recommendations on how to achieve sustainable universal access and service, and they should also be engaged in relation to network installation in places that are difficult to cover.
- **Reconsider pay and play**: In the Africa region, 'pay or play' constitutes 4.54 per cent of the total funds available for universal service (see Figure 14). Some licensees have raised the point (some in litigation) that having contributed a levy or fee to the fund they should have no further obligations in relation to universal service. This suggests that they do not wish to apply for subsidies or otherwise participate in any initiatives in relation to universal access and service. However, engaging with licensees as suggested above is vital to determine what part they are willing to play.
- **Regulate pricing of services to identified institutions:** A list of specific institutions in under-served areas should be produced, based on Geographic Information System (GIS) and government location information, and if possible, mapped to existing network infrastructure. Licensees could then – in proportion to their market share – be obliged to provide voice and Internet access at a reduced rate to those institutions for a specific time period.

Box 31: Regulating pricing to identified institutions: South Africa

In South Africa, a regulated pricing obligation only applies if a licensee provides service to public health establishments, public and independent schools, public and private colleges, and public and private higher and further education and training institutions. If licensees do so, they must charge the e-rate, which is defined in the national law as "a minimum discounted rate of 50 per cent off the total charge levied by the licensee providing Internet services to such institutions." [1] The discount must be applied to connectivity charges for access to the Internet, charges for facilities used for connection, and call charges for access to the Internet. Resellers who provide service to such institutions, which have been acquired from a licensee are also entitled to a minimum discount of 50 per cent off the wholesale rate charged to them by the licensee. The Universal Service and Access Agency of South Africa (USAASA) may pay the charges on behalf of an institution and in that case, it is entitled to the discount. However, the national law only obliges licensees to discount the rates if they provide service to these institutions.

[1] Section 73 of the Electronic Communications Act, 2005.

- **Encourage local design and/or manufacturing:** Being able to manufacture devices locally is not only likely to increase employment with all of its attendant benefits but may offer an opportunity for existing or new manufacturing plants to create new business. Purchasing from local manufacturers would eliminate import duties on devices although some countries may have high import taxes on materials, which should be taken into account when starting a local business. Devices and applications could also be manufactured outside the country but to meet local specifications which could be based on need. Whereas a feature phone is adequate for voice calls, it is not capable of accessing all applications. Specific content accessible on locally developed applications made available on locally made devices would exponentially increase access. Of course, even local production would have a cost, as would development of apps and provision of service to enable a connection. However, discussion with local manufacturers, licensees and application developers would doubtless be beneficial[63]. There are numerous examples of development of this sort[64] including a smartphone developed by Orange.[65]

[63] See the Working Group Report on Smartphone Access Strategies Towards Universal Smartphone Access (broadbandcommission.org)

[64] South African startup Qwili gets $1.2M to scale its app and low-cost NFC-enabled smartphone | TechCrunch

[65] In an interview about the phone, Orange said, "Orange wants to strongly accelerate access to connectivity on the African continent. One of the barriers to Internet use is the price and ease of use of most smartphones. The partnership with Google to offer the Sanza touch smartphone for sale will enable us to solve this problem thanks to its affordable price and advanced functionalities. While 90% of the world's population is now covered by mobile broadband, 3.3 billion people who live in areas covered by mobile broadband remain unconnected for reasons such as affordability, low levels of literacy and digital skills." Orange releasing Android-powered ultra-low cost smartphone for Africa - Developing Telecoms

Box 32: Eswatini case study

In Eswatini, the government decided to pay quarterly social grants by mobile or e-wallet instead of in cash but the obvious barrier was access to devices. The fund identified this as a 'need' and then illustrated to government how much more could be done with a mobile device (taking pictures of crafts and posting them on social media for sale or becoming mobile money agents). As a result, the government agreed to obtain 2 000 mobile smartphones conforming to a particular specification – more work was then required in order to ensure the elderly could use the phones but it allowed the fund to assess if the project was workable on a relatively small scale.

- **Avoid burdensome tax obligations on small operators:** Encouraging co-operation from licensees in implementing universal access and service is going to be exponentially more difficult if they already consider their tax contributions to be over-reaching, because ultimately, they are commercial entities and must offer a return on investment to shareholders or they may well withdraw. A more inviting investment climate in general is vital to generally uplifting the economy by creating jobs, innovating, and improving the quality of life of citizens by enabling access to affordable telecommunications. In Mauritius, the fund was able to persuade law makers to pass a regulation that distinguished between large and small operators, affording small operators some relief by reducing their contribution to the fund. This required extensive research into comparative small island developing States (SIDS) to present arguments that it would be fair and reasonable to reduce the contribution and in so doing, reduce the burden on small operators.
- **Communicate with stakeholders:** Although it seems obvious that those tasked with creating, administering, and disbursing funds for universal service and access would be those most likely to have insights into what is necessary legally and from a policy perspective, there needs to be formal and informal engagements where insights can be shared and there must be mechanisms for formal reporting on the outcomes to decision-makers:
  - *Engage with the regulatory authority* on a regular basis in a formal capacity, to assess regulatory priorities as well as bottlenecks, and establish how they are tackling national policy goals.

    Ensure that the outcomes of these meetings are reported to the relevant minister or task team (if there is one) for digital transformation.
  - *Identify obstacles in national law*, if any, to achieving optimal performance from the fund and report on these to Parliament or the relevant minister, or both.

    If the obstacle is the law, or a law, then suggest amendments that might assist, or consider whether regulations, directions or licence conditions would enable the fund to work around the issue.
  - *Publish regular reports* on the fund, sector regulator or ministry website, giving insight into performance of the fund to date and issues affecting performance.

    Ensure that the publications are kept up to date with actions taken and outcomes.

- *Engage with national treasury or the minister of finance* or similar agency to discuss funding restrictions and issues including currency fluctuations, increasing a return on investment for the fund, and similar matters and report on these meetings and undertakings sought or given.

  Actively prepare for these meetings by ensuring that the accounts of the fund and the shortfall or other issues relating to the financial ability of the fund to meet its obligations, can be carefully explained with possible solutions presented.
- *Engage with licensees* about their experiences and suggestions regarding licence conditions, legislation, national policy, demand-stimulation and similar issues that affect (a) their ability to fulfil any USOs; and/or (b) their willingness to pay a levy and to participate in tenders for projects; and/or (c) their ability to provide innovative and affordable packages; and/or (d) their recommendations regarding obstacles faced by the fund.

  Hold the engagements in public, and invite members of government, the regulatory authority and consumer protection bodies to attend and create an appropriate agenda and minute the meetings, send the minutes to stakeholders and publish them on a website.
- In making annual reports on accounts and projects, illustrate the shortfall, gaps, or other issues that have arisen and the possible actions that could improve or remove these in future.

Appendix 1: Universal and meaningful connectivity indicators taking account of the 2030 targets

The following table contains a number of suggestions included in a baseline dashboard as indicators of what has been achieved in relation to broadband targets.

Indicator with units	2030 target	Guiding principle
Universality metrics		
Internet users, % population		
Aged 15 and above	100	Universality
Gender parity score (1 = parity)	1	Parity
Households with Internet access, %	100	Universality
Schools connected to the Internet, %	100	Universality
Businesses using the Internet (0 employees or more), %	100	Universality
> 10 employees	100	Universality
Connectivity enablers		
Mobile network coverage, % population		
3G 4G 5G	100% for the most advanced technology already present in the country, with minimum coverage of 40%	Universality
Fixed-broadband speed, % subscriptions		
>10 Mbit/s	100	Universality
School connectivity		
Minimum download speed, Mbit/s per school	20	Technology
Minimum download speed, kbit/s per student	50	Technology
Minimum data allowance, GB	200	Technology
Entry-level broadband subscription price		
% gross national income per capita	2	Affordability
% average income of the bottom 40% of population	2	Affordability
Individuals using a mobile phone		
Gender parity score (1 = parity)	1	Parity
Individuals owning a mobile phone, % population		
Aged 15 and above	100	Universality
Gender parity score (1 = parity)	1	Parity
Population aged 15+ with basic skills, %	70	Very high prevalence
Gender parity score (1 = parity)	1	Parity
Population aged 15+ with intermediate skills, %	50	Majority of population
Gender parity score (1 = parity)	1	Parity

Source: www.itu.int/itu-d/meetings/statistics/wp-content/uploads/sites/8/2022/04/UniversalMeaningfulDigitalConnectivityTargets2030_BackgroundPaper.pdf

Appendix 2: Connectivity indicators and the SDGs

The following graphic illustrates how the previous indicators can be mapped to the SDGs.

	*Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*	Connectivity can provide access to online education in general, as well as helping to develop the digital skills needed to work online and find jobs. **Indicator 4.a.1: Proportion of schools offering basic services, by type of service, includes 'Internet' and 'computers' among the services** **Indicator 4.4.1: Proportion of youth and adults with ICT skills, by type of skills** ITU is partnering with the International Labour Organization (ILO) to develop digital skills for youth to promote employment. See also the Giga initiative under SDG 16.
	*Achieve gender equality and empower all women and girls*	The benefits of connectivity should be available to all equally, but currently there is a digital gender gap. **Indicator 5.b.1: Proportion of individuals who own a mobile telephone, by sex** ITU is involved in a number of gender equality initiatives, including EQUALS, a global network to improve women's access to technology, and that promotes female leadership in the tech sector.
	*Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation*	The Internet is a key enabler of digital infrastructure, the digital economy and innovation. Target 9.c addresses connectivity specifically. **Indicator 9.c.1: Proportion of population covered by a mobile network, by technology** ITU works to close the digital divide, including as part of the Broadband Commission for Sustainable Development in partnership with UNESCO (see Chapter 5).

Source: Global Connectivity Report 2022 (itu.int)

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