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**ETHIOPIAN**  
COMMUNICATIONS AUTHORITY

**UNIVERSAL ACCESS AND SERVICE  
FRAMEWORK**

**FINAL**

**April 2022**

## Abbreviations and Acronyms

CAPEX	Capital Expenditures
CPF	Country Partnership Framework
ECA	Ethiopian Communications Authority
ECRRP	Ethiopia Country Refugee Response Plan
E&S	Environmental and Social
EHS	Environment, Health & Safety
ESCP	Environmental & Social Commitment Plans
ESMF	Environmental & Social Framework
EthERNet	Ethiopian Educational Research Network
FTP	File Transfer Protocol
GIS	Geographical Information System
GoE	Government of Ethiopia
HoA	Horn of Africa
ICT	information and communication technologies
IDA	International Development Association
IDP	Internally-Displaced Person
IP	Internet Protocol
LTE	Long Term Evolution (Equivalent to 4G)
M&E	Monitoring and Evaluation
MInT	Ministry of Innovation and Technology
MORAN	Multi-Operator Radio Access Network
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
OPEX	Operating Expenses
PDO	Project Development Objective
QoS	Quality of Service
RPF	Resettlement Policy Framework
SGBV	Sexual and Gender based Violence
UNHCR	United Nations High Commissioner for Refugees
UAF	Universal Access Fund
UAS	Universal Access and Service
WASH	Water, Sanitation and Hygiene
WBG	World Bank Group

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# Universal Access & Service Framework

## 1 Introduction

The Government of the Federal Democratic Republic of Ethiopia (alternatively “the Government” or “GoE”) is committed to ensuring that all its citizens have access to modern, high-quality communications services. Universal Access (alternatively “UA”) means that all segments of Ethiopia’s population, regardless of their geographic location, socio-economic standing, situation and capability, must have access to a full range of communications services at suitable (affordable) prices. Universal Service (alternatively “US”) means that all citizens will ultimately be able to subscribe privately to a full range of affordable voice and data services. In general, this document shall use the term Universal Access as representing the overall strategy and objective of UA, which is to eventually achieve US in Ethiopia.

On the way to achieving this objective, in 2018 the Government established a policy in favor of market liberalization and competition. This includes the opening of the market as well as restructuring of, and engaging private sector participation in, the incumbent telecommunications operator, Ethio telecom. The following year, in 2019, the Government launched the home-grown Economic Reform Agenda which aims to expand Ethiopia’s economic capabilities by giving particular emphasis to several sectors including information and communications technology. With the 2020 Ten-Year National Development Plan (2020-2030) and Digital Ethiopia Strategy 2025, Ethiopia stands poised to rapidly enter into a period of national development and growth.

The private sector, through these newly created market conditions in Ethiopia, will have an important role to play in meeting universal access targets and universal service by bringing increased investments, a broader range of ICT services and competition-induced lower prices to the country. Nevertheless, there is a need for the Government to ensure that the largest number of users possible receive the full socio-economic benefit of communications services. In particular, the promotion of communications service investments in rural and un-served areas is a high priority, and will be enhanced through provision of financial incentives to ensure the most extensive coverage and affordability.

The Communications Services Proclamation No. 1148/2019 (“the Proclamation”), established the Ethiopian Communications Authority (alternatively the “Authority” or “ECA”) to, among other responsibilities, ensure that communications services are operated in a manner that will best serve and contribute to the nation’s economic and social development. The Proclamation also established the Universal Access Fund (alternatively the “UAF” or “Fund”) to support achievement of universal access. The Authority is charged with developing the objectives and goals for Universal Access and is mandated to manage and administer the Fund.

The amounts and sources of income to be made available to the Fund and its manner of administration is determined by the Universal Access Fund Regulation to be issued by the Council of Ministers. The Fund is primarily to be financed by mandatory annual contributions from all licensed operators that will provide services in the various Communications and Information market segments. The Fund will also have provisions for complementary financing from other sources.

In discharging its mandate, the Authority has prepared this Universal Access and Service Framework providing a five-year policy and planning perspective, to inform the public and all stakeholders about the key aspects, considerations and principles that the Authority shall uphold in promoting Universal Access and administering the Fund.

## 2 The Universal Access Objectives

### 2.1 General

Universal Access is the availability of communications services of a quality specified by the Authority to all users regardless of their geographic location; accessible regardless of physical or mental ability, race, gender, religion or any other social factor; and priced affordably regardless of income level.

The type of services made available in the next five (5) years shall include, at a minimum, voice, text and data, including broadband access to the Internet at a speed and facility that is universal for users located in urban and rural areas, and accessible to persons with disabilities who shall be progressively facilitated for better access in the universal access strategy:

- **Voice service coverage with call and text quality in accordance with the Authority's Quality of Service (QoS) Directive** shall be extended beyond the current reach of over 99% of the total population. Within this overall national target, even populations that are located in the most underserved, remote rural Weredas and Kebeles nationwide must have a minimum of eighty percent (80%) coverage;
- **The speed of Internet access services** shall be targeted at a minimum of 10 Mbps download/upload (FTP) as required by the QoS Directive, to be achievable by the year 2025, using the most appropriate technology by that date, and shall cover the same high percentages of population in all parts of the country. All other QoS parameters for Internet and other data services shall meet the QoS Directive requirements;
- Required service quality will be increased beyond 2025 in appropriately progressive increments, in accordance with revised requirements to be established from time to time in the QoS Directive.

This policy framework for universal access builds upon the extensive voice and broadband presence already achieved by the incumbent and the expectation for deep, competitive rollout from new licensees, which will naturally increase service quality and customer choice over the next five years.

The private sector, through the newly created liberalized market, will thus have an important part to play, largely by enabling and promoting both increased access as a result of more investments as well as customer take-up/penetration through bringing lower, competition-induced prices to the country.

The role of the Fund shall be to supplement commercial service provision by offering financial incentives, where judged necessary, to ensure that voice and broadband services will reach all targeted populations at the specified quality in a commercially sustainable manner.

### 2.2 Complementary Regulatory Support Measures

#### 2.2.1 Frequency Spectrum

To ensure that the objectives for universal access to rural areas can be met and in particular that the minimum specified data speeds can be reached ubiquitously, the Authority shall consider making a full range of mobile service frequency spectrum bands available<sup>1</sup>. Together with industry consultation, the Authority shall ensure that

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<sup>1</sup> As noted in the Stakeholder Consultation Public Notice dated October 22, 2019, allocations from ITU-R Recommendation M.1036-5 for mobile telecommunications services shall be considered.

appropriate, non-discriminatory frequency spectrum allocations which match the requirements for optimal rural coverage are made available to operators.

### **2.2.2 Infrastructure Sharing and Roaming**

Other supportive regulatory measures which complement the objective of universal access, such as the following, have been enacted or shall be pursued by the Authority in support of Universal Access Objectives:

- a) *Passive infrastructure sharing and collocation* - including dark fiber, ducts, rights of way, towers, building space, on a non-discriminatory basis, in accordance with the Authority's Infrastructure and Collocation Directive. Open access shall be a mandatory condition for receiving subsidies from the Fund;
- b) *Domestic roaming, in specified rural areas as a minimum* - roaming shall be encouraged or mandated as appropriate to ensure that a judicious and fair balance of competitive and collaborative forces are harnessed and incentivized to achieve universal access especially to rural areas, and shall be in broad accordance with the Authority's Telecommunications Wholesale National Roaming Directive;
- c) *Active infrastructure network sharing* - the Authority shall also consider the potential for strategically encouraging commercial implementation of Multi-Operator Radio Access Networks (MORANs) - Radio Access Network sharing - as a way for operators to share radio access network infrastructure, especially in specified rural zones.

### **2.2.3 Additional Areas of Interest**

In order to support its objectives and to develop and maintain the strongest possible links between the universal access program and beneficiaries in the Ethiopian economy, and to disseminate an understanding of the universal access program, the Authority through the UAF shall continually pursue the following activities:

- a) Monitor and promote research into the development and use of new communications techniques and technologies, especially those that improve the viability of rural communications and those that promote accessibility to communications services for persons with disability and other disadvantaged or marginalised members of society;
- b) Develop links and collaborate with educational institutions and relevant government sectoral agencies to promote both connectivity and technical education in the field of telecommunications and ICT. This shall focus on the objective of contributing to development of the ICT capacity of students and graduates at all levels of education, to develop user skills and economic opportunity in ICT related or enhanced economic activities;
- c) Develop links and collaborate with Incubation Hubs, Start-ups and Private IT Training and Development Companies in capacity building, and promote content and application developments;
- d) Monitor and promote, as needed and appropriate, the development of useable content and applications that increase the demand for and enrich users' experience of communications and information services.

As the Fund's programs are developed, these interests shall be incorporated into the objectives, planning and approved activities of the Fund, as deemed necessary to support the achievement and benefits of universal access and service across the country.

### 3 Objectives of the Universal Access Fund

The objectives of the Fund as provided in the Proclamation shall include the following, arranged into primary (highest priority) for programming attention as soon as finance becomes available (originally envisaged in Years 1-3), and secondary, demand-support areas, for initial planning in the early years but to be implemented following observation of the initial development period of the liberalised market.

#### 3.1 Phase 1 - Primary Objectives

- a) *Stream 1 - Extend communications infrastructure and services* to all administrative levels of human population in Ethiopia, in particular to rural, remote and under-served Woredas and Kebeles;
- b) *Stream 2 - Facilitate the national integration of networks and services* – e.g., by the improvement of backbone facilities - to reach a more ubiquitous quality of service delivery deemed to be the minimum for achievement of universal access; and
- c) *Promotion and support activities* assuring availability of services to all socio-economic segments of society, in particular to be inclusive of persons with disabilities and other vulnerable or marginalized groups, including women and youths.

#### 3.2 Phase 2 – Sectoral and Demand-side Support

The following areas shall hold the Authority's interest from commencement, for survey and research, consultation and encouragement. An early Phase 2 Planning Study shall be undertaken and a relevant database shall be created in Year 1 of the Fund's 5-Year Strategic Plan. However, a strategy for financial involvement by the Fund shall mostly follow initial achievements on the primary objectives as well as the availability of the Fund's main source of finance.

- a) *Stream 3 - Support sectoral expansion of ICT and e-services services* – e.g., for schools and higher education<sup>2</sup>, health facilities and other organizations serving public needs;
- b) *Stream 4 - Support the development of ICT skills, capacity building and technological innovation*, where gaps in skills and user capacity are observed and identified;
- c) *Stream 5 - Facilitate content and application development* that will provide improved and beneficial access to under-represented people and socio-economic activities; and
- d) *Stream 6 - Special projects*, that are expected to be initiatives originating from non-Government or civil society sources and are expected to include community networks so long as consistent with the Fund's priority objectives of universal access, overall communications market development and fulfillment of the demand and need for ICT services across the populace.

The Phase 2 areas shall be generally formulated and accelerate following initial rollout of competitive services into the market, when the user demand and ICT capacity characteristics in the unique Ethiopian context will be better known and understood.

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<sup>2</sup> including dialogue with the Ethiopian Education and Research Network (EthERN) and consideration of SchoolNet



### 3.3 Market Context – Incumbent Current Coverage

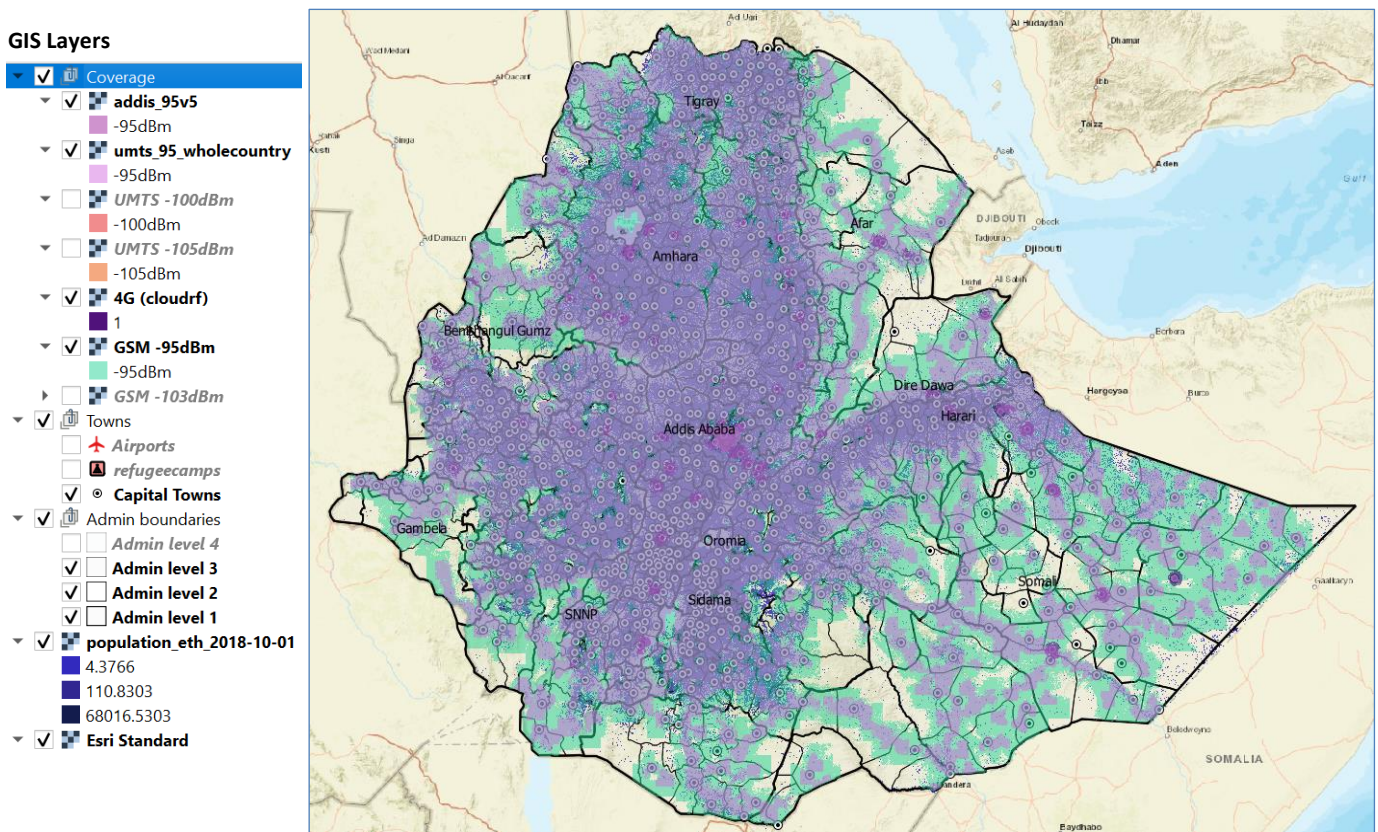
#### 3.3.1 2021 Gap Study Analysis

The updated, fully GIS based ICT Gap Study undertaken in 2021 superimposed the digital signal prediction maps for mid-2021 secured from Ethiopia Telecom onto official administrative border datasets at all levels – region, zone, woreda and kabele in a QGIS open-source GIS model.

The model also imported a highly accurate, satellite image enhanced population distribution layer from the most reputable GIS map source, namely the “High Resolution Settlement Layer” (HRSL) dataset published by OCHA at: <https://data.humdata.org/dataset/ethiopia-high-resolution-population-density-maps-demographic-estimates>.

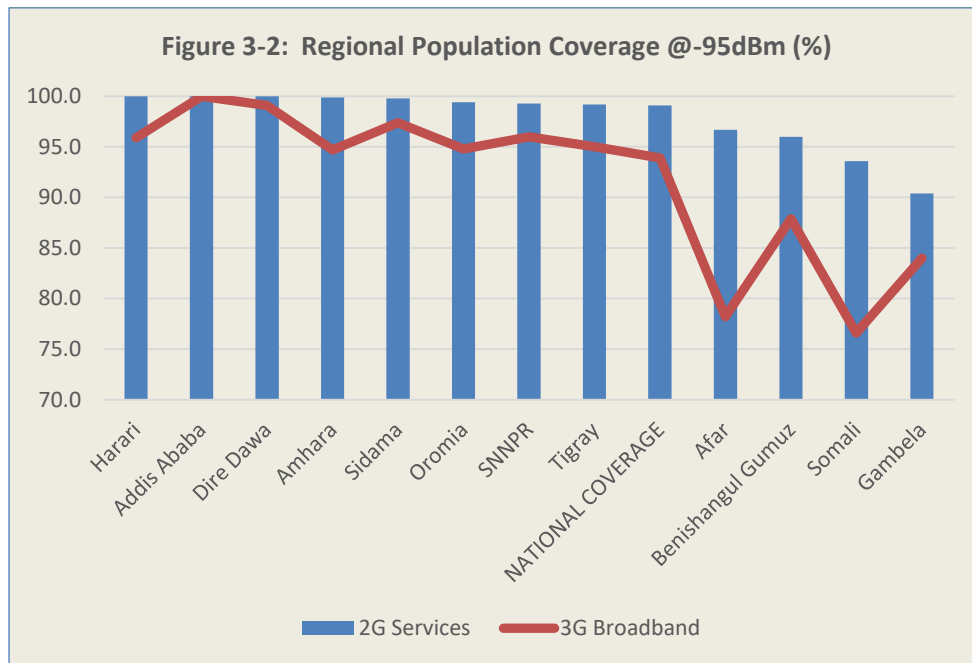
Figure 3.1, which is the QGIS model output, shows the national coverage at 2G, 3G and 4G, indicating Administrative borders down to Level 3 (Woreda), main towns and cities (the “Capital towns”) in each Woreda, and population concentrations indicating populations that are uncovered by the 2G (green), 3G (mauve) or nascent 4G (purple) signals. The gaps are mostly near national borders. Later sections in this Framework document reveal additional GIS layers used for program and planning and project design purposes.

**Figure 3-1: 2G and Broadband Coverage Map**



#### 3.3.2 Incumbent Basic (2G) and Broadband Reach by region

Using the above-referenced Gap Study methodology, the National 2G coverage was calculated to be 99.1% of the population, while 3G broadband national coverage is over 93.9%. Regional coverages are indicated in Figure 3-2 below:



In summary, it is clear that Ethio telecom has rolled out near ubiquitous voice service coverage and a measure of broadband service extensively, reaching almost all rural population concentrations. However, there are some noticeable regional differences which the UAF will consider as highest priority in its universal access programming.

2G coverage ranges from 100% in Addis Ababa, Harari, Dire Dawa and Amhara (99.9%) down to 90.4% in Gambela region, while 3G Broadband coverage ranges from 100% coverage in Addis Ababa and 99.1% in Dire Dawa down to 76.6% in Somali. Figure 3.2 shows clearly the divide between high coverage regions and the more challenging regions of Afar, Benishangul Gumuz, Somali and Gambela, all of which have figures below the National average.

LTE (4G) broadband is under accelerated rollout. By mid-2021 more than 60 cities and towns outside of Addis Ababa, Harari and Dire Dawa had greater than 75% population coverage. In view of the rapid changes taking place, one of the UAF’s first activities after submission of its first Five-Year Strategic Plan will be to secure an updated GIS coverage map for 4G and prepare the composite mid-year coverage statistics including both the incumbent and new entrant(s) in subsequent versions of the Plan.

**3.3.3 Analysis of coverage to Woreda level**

Nationally at 2G, around 95% of Woredas have over 90% population coverage and only 1% (10 Woredas) have less than 50% coverage. At 3G broadband, 76% of Woredas have better than 90% coverage and only 5% (47 Woredas) have less than 50% coverage.

At 4G, to date just 73 Woredas in total, from nine (9) regions, had better than 90% coverage, while 157 Woredas had some coverage (better than 10%).

Even at the Kebele level, the large majority have more than 90% 3G broadband coverage and a high percentage have better than 50% coverage.

Table 3.1 below shows the Woreda level Gap Study analysis for 2G services and Tables 3.2 and 3.3 show the broadband analysis including the 4G coverage as at Q2 2021.

Table 3.1 Regional Summary		Gap Study 2G Analysis @ -95dBm						
Region	Total Woredas	Woredas below 90% Area coverage	% of total	Woredas below 90% population coverage	% of total	Woredas below 75% population coverage	Woredas below 50% population coverage	% of total
Tigray	88	4	5%	4	5%	1	0	0%
Afar	39	14	36%	5	13%	2	1	3%
Amhara	183	4	2%	1	1%	0	0	0%
Oromia	334	30	9%	8	2%	3	0	0%
Somali	98	50	51%	26	27%	14	8	8%
Benishangul Gumuz	21	15	71%	5	24%	0	0	0%
SNNP	193	8	4%	5	3%	0	0	0%
Gambela	15	8	53%	2	13%	2	1	7%
Harari	9	0	0%	0	0%	0	0	0%
Addis Ababa	10*	0	0%	0	0%	0	0	0%
Dire Dawa	13	0	0%	0	0%	0	0	0%
Sidama	37	0	0%	0	0%	0	0	0%
<b>Totals</b>	<b>1,040</b>	<b>133</b>	<b>13%</b>	<b>56</b>	<b>5%</b>	<b>22</b>	<b>10</b>	<b>1%</b>

Table 3.2 Regional Summary		Gap Study 3G Analysis @ -95dBm						
Region	Total Woredas	Woredas below 90% Area coverage	% of total	Woredas below 90% population coverage	% of total	Woredas below 75% population coverage	Woredas below 50% population coverage	% of total
Tigray	88	29	33%	15	17%	5	2	2%
Afar	39	32	82%	24	62%	13	7	18%
Amhara	183	46	25%	32	17%	12	1	1%
Oromia	334	108	32%	66	20%	29	5	1%
Somali	98	86	88%	67	68%	48	28	29%
Benishangul Gumuz	21	20	95%	10	48%	2	0	0%
SNNP	193	38	20%	25	13%	8	2	1%
Gambela	15	14	93%	4	27%	3	2	13%
Harari	9	3	33%	2	22%	0	0	0%
Addis Ababa	10*	0	0%	0	0%	0	0	0%
Dire Dawa	13	2	15%	0	0%	0	0	0%
Sidama	37	5	14%	3	8%	2	0	0%
<b>Totals</b>	<b>1,040</b>	<b>383</b>	<b>37%</b>	<b>248</b>	<b>24%</b>	<b>122</b>	<b>47</b>	<b>5%</b>

Table 3.3 Regional Summary		Gap Study 4G Analysis @ -95 dBm							
Region	Total Woredas	Woredas below 90% Area coverage	% of total	Woredas below 90% population coverage	% of total	Woredas below 75% population coverage	Woredas below 50% population coverage	Woredas with better than 10% coverage	% of total
Tigray	88	88	100%	88	100%	88	88	0	0%
Afar	39	37	95%	36	92%	35	35	8	21%
Amhara	183	177	97%	165	90%	162	162	37	20%
Oromia	334	319	96%	315	94%	312	308	45	13%
Somali	98	94	96%	93	95%	93	91	15	15%
Benishangul Gumuz	21	21	100%	21	100%	21	20	3	14%
SNNP	193	188	97%	187	97%	186	184	21	11%
Gambela	15	15	100%	15	100%	15	15	0	0%
Harari	9	7	78%	6	67%	5	3	8	89%
Addis Ababa	10*	0	0%	0	0%	0	0	10	100%
Dire Dawa	13	5	38%	4	31%	4	3	10	77%
Sidama	37	37	100%	37	100%	37	37	0	0%
<b>Totals</b>	<b>1,040</b>	<b>988</b>	<b>95%</b>	<b>967</b>	<b>93%</b>	<b>958</b>	<b>946</b>	<b>157</b>	<b>15%</b>

Note\*: The administrative units indicated in the Addis Ababa region are sub-cities

### 3.3.4 Quality of Broadband Service

The degree to which Ethio Telecom’s Internet data services meet the requirements of the QoS Directive at the predicted coverage level is not known at the time of preparation. Whereas Ethio Telecom has around 22,000 Kms of optical fiber<sup>3</sup>, the number of its 7,100+

<sup>3</sup> According to information supplied by Ethio telecom for the Valuation Audit, June 2019, and AfricaBandwidth.com

Node-B and eNode-B base station sites that are connected via microwave, rather than directly to fiber backbone nodes, is more than 90% outside of main cities.<sup>4</sup> Even the current roll-out of LTE/4G, which is in urban areas to date, is not expected to have altered this statistic substantially. Significant bandwidth capacity limitations may therefore occur in parts of the network, depending on the type of microwave currently in use.

### 3.3.5 Targeting the Transmission and Backbone Gap

Bringing existing rural area sites up to the broadband standard indicated in Section 2.1 and enabling Ethio Telecom, as well as new licensees who may share sites, to roll out more advanced technology (e.g., 4G) into rural areas will likely require extensive enhancements and optimization of the backbone connectivity. This may not be economically feasible in the regions indicated in Section 3.3.2 to be the least developed<sup>5</sup>. The achievement of Universal Access in the context of a liberalized market may therefore require support for upgrading many transmission links to optical fiber, as a foundation for high quality universal broadband connectivity.

There is good international precedent, from best-case examples, for the UAF to provide financial support for optical fiber connectivity into all Zonal centers and onwards to Woreda-level<sup>6</sup>.

An initial UAF fiber development study summarised in the “Potential Fibre Strategy and Program Costing Report” (June 2020) estimated that a total of 5,350 non-urban sites are not connected to fibre and that 47,194 Kms of fibre would be required to connect all sites, of which:

- 25,301 Kms would connect approximately 3,600 sites located less than 30 Km from the nearest fibre node; and
- 21,894 Kms would connect the remaining 1,670 sites that are located more than 30 Km away.

Not all of the links included in these totals will be in non-commercially viable areas requiring subsidization and many sites can be remain economically served by broadband digital microwave. There are many variables which could affect how upgrades may take place or change the time schedule as the liberalised market develops. Final target areas and a detailed strategy, including estimated subsidy requirements require a more detailed technical audit of existing backbone and transmission connectivity, to be completed with UAF’s planned database creation and subsequent program development activities.

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<sup>4</sup> Ibid.

<sup>5</sup> Afar, Benishagul Gumuz, Gambela and Somali Regions will have business viability issues to upgrade backbone connectivity

<sup>6</sup> The USFs in India, Pakistan, Nepal, Indonesia, Chile, Nigeria, among others, have set and implemented fiber access to specified administrative levels (e.g., district).

## 4 Role of new Licensees in the Universal Access Regime

### 4.1 Objective overview

The Ethio telecom network has reached a higher percentage of the country's geographical and population than normal in monopoly situations that have undergone liberalization. Therefore competitive entrants will largely play a role of deepening and market development (including pressure towards QoS improvement) that is adjunct to the achievement of geographical universal access, as opposed to providing services into new, unreached areas of the country. In other markets, universal access interventions such as "smart subsidies" have typically been used at a much earlier stage to encourage all competing operators to reach new areas and close coverage gaps which have already been closed by Ethio Telecom.

However, whereas coverage has already been technically provided to the extent described, more advanced market features such as consumer choice, competitive (affordable) pricing, product innovation and market-driven service quality have been inadequate to achieve a high level of penetration. As a result, Ethiopia lags behind its peers in mobile *penetration*, mobile applications (e.g., m-Money) and Internet usage. There is thus a market gap to be addressed, even though the physical coverage gap is small in terms of population.

To effect successful entry and to reflect this situation fairly, the new licensees will not be expected or obligated to match Ethio telecom's physical network reach for at least the first five years of operation. By the same token, the new licensees will not have access to UAF funds to assist with reaching any areas where Ethio telecom has already invested and is present, nor to support introduction of new or enhanced competitive services into those areas, except possibly in the area of backbone upgrade (i.e., fiberisation). Access to UAF funds for participating in the UAF's universal access programs, as described in Section 7, will however be open for competitive bidding by all licensed operators.

The setting and acceptance by industry, of aggressive yet practical and feasible rollout targets and coverage obligations is critical to the creation and emergence of a healthy national market. The market is expected to be sustained by competitive forces and high quality infrastructure capable of universal broadband services. These targets and obligations are being enforced, through the new entrants' license conditions, while physical expansion to underserved areas and augmentation of the national backbone for improved capacity shall be supported by the UAF.

### 4.2 Rollout Obligations

After consideration of industry comments following publication of the Stakeholder Consultation Public Notice in October 2019 and the Invitation for Expressions of Interest in May 2020 and ensuing dialogue with prospective bidders, the coverage obligations required, from the date of commercial launch, to ensure major investments and adequate market coverage nationally are the following, shown in Tables 4.1 to 4.4:

### 4.2.1 Minimum National Population Coverage

Service	12 months	24 months	36 months	48 months	60 months	84 months	120 months	180 months
Voice text & the defined level of Broadband data	25%	40%	55%	70%	80%	90%	95%	97%

### 4.2.2 Minimum National infrastructure coverage requirement

Infrastructure	Description	Service	Within 12 months	Within 24 months	Within 36 months	Within 48 months	Within 60 months	Within 120 months
Highways/ major roads	All major TRUNK Roads (A), LINK Roads (B) and Main Access Roads (C) <sup>7</sup>	Voice service, text & the defined level of broadband data	35%	50%	65%	80%	95%	97%
Airports	Airports of cities with population > 100,000	Voice service, text & the defined level of broadband data	50%	75%	100%	100%	100%	100%
Special Economic Zones	All Industrial zones and Industrial parks <sup>8</sup>	Voice service, text & the defined level of broadband data	100%	100%	100%	100%	100%	100%

<sup>7</sup> TRUNK Road (A) means a road between main/capital cities, between regions, or that connects with neighboring countries; LINK Road (B) means a road that links or interconnects Trunk roads to each other; Main Access Road (C) means roads that lead or connect to Trunk roads, connecting Woreda cities to major cities or zones  
 Ref. <https://sites.google.com/site/roadnumberingsystems/home/countries/ethiopia>

<sup>8</sup> Special Economic Zones (SEZs) are mega industrialization projects planned largely by regional or city administrations to spur economic growth and enhance global market access. Currently designated SEZs are in the following locations: Eastern Industry Zone, Dukem Oromia; Industry Parks in Bole Lomi, Kilinto, Airlines & Logistics Park (Addis Abba), Hawassa (SNNPR), Mekelle (Tigray), Kombolcha (Amhara), Adama & Jimma (Oromia), Debre Birhan, Bahir Dar & Arerti (Amhara), Kingdom Linen (Dire Dawa).

### 4.2.3 Geographical targets – Urban

Level	Description	Minimum Requirement	Geographic coverage by the end of Year 1	End of Year 2	End of Year 3	End of Year 4	End of Year 5
Category 1: Large cities (above 250,000) and Regional Capitals	- Addis Ababa - Gondar - Mekele - Adama - Awasa - Bahir Dar - Dire Dawa - Harar - Jijiga - Semera - Asosa - Gambela	Geographic coverage for both voice and data services – full coverage for all land area	10 Km from city centre	20 Km from city centre	30 Km from city centre	30 Km from city centre	30 Km from city centre
Medium Cities	Between 100,000 and 250,000 - 13 cities <sup>9</sup>	Geographic coverage for both voice and data services – full coverage for all land area	5 Km from city centre	5 Km from city centre	10 Km from city centre	15 Km from city centre	15 Km from city centre
Small cities	Between 20,000 and 100,000 - Max. 130 cities <sup>10</sup> (to be negotiated)	Geographic coverage for both voice and data services – full coverage for all land area	No minimum requirement	5 Km from city centre	5 Km from city centre	10 Km from city centre	10 Km from city centre

### 4.2.4 Regional and Rural Targets

Operators must be present from Year 1 in all of the nation's Regions and Administrations and shall have a presence in at least the main city of all Zones within the first five (5) years, in accordance with the requirements of the following table:

Region <sup>11</sup>	Urbanization (%)	Population density	No. Zones	Min. Zone presence at end of Year 1	Min. Zone presence at end of Year 2	Min. Zone presence at end of Year 3	Min. Zone presence at end of Year 4	Zone presence at end of Year 5
1. Gambela	33.9	14.6	3	1	1	2	2	3
2. Somali	14.6	20.6	9	1	3	5	7	9
3. Benishangul Gumuz	21.6	21.0	3	1	1	2	2	3

<sup>9</sup> Dessie, Jimma, Wolayita Sodo, Shashamane, Debre Zeyit (Bishoftu), Arba Minch, Hosaena, Dilla, Nekemte, Debre Birhan, Debre Markos, Assella, Kombolcha

<sup>10</sup> Names to be referenced to Central Statistics Agency. List for this purpose are available at the following site: <http://www.ethiovisit.com/ethiopia/ethiopia-regions-and-cities.html>

<sup>11</sup> This Framework and tables lists those Regions that are in existence at the time of issuance of this document.



<b>Region<sup>11</sup></b>	<b>Urbanization (%)</b>	<b>Population density</b>	<b>No. Zones</b>	<b>Min. Zone presence at end of Year 1</b>	<b>Min. Zone presence at end of Year 2</b>	<b>Min. Zone presence at end of Year 3</b>	<b>Min. Zone presence at end of Year 4</b>	<b>Zone presence at end of Year 5</b>
4. Afar	19,1	25.1	5	1	2	3	4	5
5. Tigray	27.0	61.9	5	1	2	3	4	5
6. Oromia	15.1	124.6	17	5	8	12	15	17
7. Amhara	17.4	136.6	11	3	6	8	10	11
8. SNNPR	16.6	181,7	14	3	5	8	11	14
9. Sidama	n/a	n/a	1	1				
10. Dire Dawa	62.8	298.9	1	1	1	1	1	1
11. Harari	55.7	736.5	1	1	1	1	1	1
12. Addis Ababa	100	6,516	1	1	1	1	1	1
<b>Total</b>			<b>71</b>	<b>20</b>	<b>32</b>	<b>47</b>	<b>59</b>	<b>71</b>

#### **4.2.5 Quality of Service Requirements**

The key performance indicators to be met in rolling out infrastructure services according to the above milestones shall be as established by the Authority's Quality of Service Directive or as officially amended and adopted into the Unified Telecommunications Services Licenses.

#### **4.2.6 Enforcement**

The terms of agreement, monitoring and reporting requirements and penalties for failure to comply with the rollout obligations shall be enshrined in the License Agreements.



## 5 UAF Governance and Management

### 5.1 Governance

The Fund shall be governed by the Authority through the Universal Access and Service Directorate with oversight by the Authority's Board of Management.

The functions of the Authority related to the UAF shall be as described in this Framework and carried out in accordance with Universal Access Fund Regulation. The functions shall include collection and accounting for the funds as provided by the Regulation, the Development of UAS Funding Strategy, Program and project development and disbursement of the funds within the provisions of this Framework, and Monitoring of Programs and Projects.

The UAF shall be headed by the UAS Directorate and Fund Director and staffed by a minimum of ten (10) senior and qualified individuals in three Divisions, namely: i) Fund Strategy and Program Development, (ii) Project Development and Design, and (iii) Monitoring and Evaluation. The UAS Directorate is responsible for all UAF Strategy, Statistical Analysis, Program and Project Development, Project Management, Monitoring and Evaluation. Certain functions such as financial levy collection, account management, legal advice, and some technical field support activities shall be undertaken through other ECA departments and/or seconded staff, to be determined by the Director General.

The ECA Board of Management shall ensure the Fund resources are properly used for the intended purpose in accordance with the UAF Regulation and will be the approval body for UAF strategic plans, program and project implementation plans, and major Fund disbursement decisions.

The Fund shall also have an Advisory Committee, which shall have representation from key stakeholders such as government, industry, consumer and regional organisations. The "Universal Access Advisory Committee" shall be consulted, be invited to review and provide inputs on UAF Fund Strategy and Programs, as well as feature its presence in public consultation events. The Advisory Committee members shall be nominated by the Director General and approved by the Board of Management for definite time-limited terms. Advisory Committee members shall be appointed for three (3) years as stated in the UAF Regulation. The constitutional rules and regulations of the Committee and its membership shall be provided in the UAF Manual of Operating Procedures.

### 5.2 Fund Resource Collection and Disbursement

A Universal Access Levy, set at the authorized one and one-half per cent (1½%) of gross revenue, shall be annually collected from all licensees offering communications system infrastructure and/or services on a commercial basis, including but not limited to, the main full-service licensees and class licensees. All licensees will be obligated to support the UAF. The rationale and justification of the levy charge, as well as the expected build-up of financial resources, is provided in Section 8.

Other sources of funding shall include:

- Government appropriations,
- Income from investments by the ECA, and/or
- Gifts, donations, grants or endowments from public and international institutions

The Authority shall ensure that utilization of the Fund is transparent to the public and to the sector industry, and shall be subject to independent audit.

The award of disbursements shall be conducted through a transparent, non-discriminatory, and competitive process. It is the Authority's intention to disburse funds in the form of non-reimbursable grants and credits for the purpose of underwriting or subsidising the capital and operating costs of projects to be implemented by Fund recipients, who shall be industry entities or related service provision organisations, in accordance with the framework described herein.

### **5.3 Grace Period and Pay-or-Play Accounting**

The Authority may, at its own discretion, and as authorised by the UAF Regulation, institute variations in the Fund collection and disbursement regime, such as:

- a) Setting a grace period of up to three (3) years during initial rollout of the new licensees network services, prior to which the universal access charge is not levied; and/or
- b) Establishing a mechanism for granting a form of "Pay-or-Play" UAF Credits that are grant or subsidy amounts attached to project rollouts agreed by operators (e.g., Stream 1 Woreda coverage extension, or Stream 2 open-access backbone fiber links). These amounts shall be credited against the operators' UAF obligation to reduce the amount owed annually after levies begin.

### **5.4 Management of the Finances of the Fund**

The UAF Regulation lays down the guidelines according to which the UAF accounts shall be prepared and maintained. The Authority shall have custody of the account books, cheque books, securities, investment instruments and other documents and papers pertaining to the Fund and the Fund Account.

The books of accounts of the Fund shall be always open for inspection by the members of the appointed Advisory Board and by licensees.

The UAF accounts shall be audited once a year by accredited professional auditors appointed by the Authority, through an open and transparent process. In addition, consistent with the statutory audit requirements, a Government audit shall also be undertaken.

In the course of managing the Fund, the Authority may make and liquidate investments of unused/surplus sums. The amounts from the Fund shall be invested only in Government risk-free financial securities or schemes. Any interest/profits shall be credited to the UAF account.

## **6 Guiding Principles of UAF Operation**

### **6.1 General**

The Authority shall operate the UAF under clear and public rules of procedure to be published in its *UAF Manual of Operating Procedures*, and according to a set of firm principles. The following describe some of these core principles that will inform and guide implementation of the UAF Programs.

### **6.2 Transparent Processes**

All activities of the UAF shall be conducted in an open, transparent manner, and in consultation with private and public sector stakeholders. In developing program goals and project design, the Authority shall consult directly with affected parties, including potential service providers, end user communities and any other public and private sector organizations that may participate in the projects.

The Fund's accounts, including collections and spending, shall be publicly available on the Authority's website, along with the results of all procurements, credits and criteria for all decisions. All UAF rules and procedures shall also be open for public inspection and input.

### **6.3 Open, Competitive Procurements**

The Authority shall award UAF project contracts only through open, competitive procedures. All eligible providers/UAF contributors will be allowed to bid for these contracts, following standard public rules and/or explicit procedures. To ensure transparency, all bidding documents will be made publicly available, along with other key information about the bidding processes and the projects to be awarded.

In the case of Pay-or-Play/UAF Credit procedures, the precise principles, calculation methodology and submission rules to be followed and the degree of competition shall be explicitly and transparently made available to all eligible participants.

For example, subsidy contracts will be contracted through a formal, open and competitive "Request for Proposal" process but will not necessarily require competitive bids to be received from multiple bidders. The contracts will be negotiated as credits against UAF payment rather than as cash payments.

Proposals will need to demonstrate that competitive sub-contract/supplier bids have been secured to demonstrate least-cost solutions. In the case of the fiber program, proposals will also need to show that they are planning routes on an economic, site-by-site build-out from existing fiber nodes reaching out into strategic areas with sufficient demand for broadband services.

At the conclusion of every project competition, a summary of the evaluation, containing the entire bidding/submission process, its history, bid prices and the result shall be publicized, including being posted on the ECA or UAF website. As projects are implemented, progress and monitoring reports, achievements and shortfalls will also be regularly updated on the Authority's and Fund website.

### **6.4 No Distortion of the Market**

The Authority will always seek to ensure that the activities of the Fund do not distort or interfere with the development and operation of private sector market competition or commercial viability. The Fund will not be used to subsidize markets or services that can

be served commercially without UAF support. All market players will have appropriate, fair and equal opportunities to compete for Fund resources, subject to additional criteria below.

## **6.5 Infrastructure Sharing**

All service providers that receive UAF funds shall be required to allow open, cost-based (i.e., commercial) sharing of infrastructure on facilities built under UAF contracts to other licensed operators. Such sharing may include access to dark fiber, bandwidth services, ducts, masts, cables, physical structures, equipment enclosures and similar facilities.

General terms, conditions, principles and restrictions on such shared access shall be in accordance with the Infrastructure Sharing and Collocation Directive. Specific rules will also be part of the UAF project tender documentation and implementation rules. These will be developed following consultation with the industry to ensure fairness and technically reasonable requirements. These terms notwithstanding, the contracting of infrastructure sharing shall be accomplished through commercially negotiated contracts which are not in conflict with the Directive or UAF rules.

## **6.6 Criteria for Selection of Areas**

The Authority shall develop clear and objective methods and criteria for prioritizing strategic investments and the geographic zones and routes where UAF projects will be implemented. In general, priority will be given to serve or support service provision to rural, remote, and small centers which are underserved or poorly connected to the backbone, and for which commercial operators cannot provide the required facilities and/or required quality of service without support.

The factors that determine which specific areas and facilities will be chosen for any given projects will be determined on a transparent and fair basis. This shall include the evidence of census and economic data, consultations with local stakeholders, taking account of such criteria as access and proximity to existing network infrastructure, size of population and density, status of supporting infrastructure (energy, roads, etc.), socio-economic conditions and demographic diversity.

## **6.7 Choice of Technology**

In awarding UAF projects, the Authority shall not expressly promote or disallow any particular technology platform, system, or architecture that can be demonstrated to achieve the required results, except in cases where there is clear general consensus on the type of technical solution required (e.g., fiber backbone).

Bidders will be encouraged to propose the most cost-effective mix of technologies using any innovative and forward-looking, future-proof solutions, so long as the chosen solution has a proven record of service in the field, anywhere in the world.

## **6.8 Limitations on Subsidies to a Single Licensee**

The Authority shall endeavor to ensure that all licensees contributing to the Fund have a fair and equal opportunity to receive subsidy funding under competitive project bids. The Authority may consider establishing a maximum limit on the total number of projects or amount of payments from the Fund that any one licensee can receive during a given time period. Since for the time being the number of main operators is only two, with widely differing geographic presence and motivations, the UAF will seek to create strategic

interest and financial conditions in its tender designs that could increase the likelihood that the new entrant(s) as well as the incumbent will participate. However, given the potential difficulties to achieve parity of opportunity, the Authority will need to exercise forbearance in the early years.

## **6.9 Public Awareness**

The Authority shall widely disseminate the purpose and objectives of the Fund through the media as well as by arranging public events, especially at places where UAF Projects are being planned or implemented.

## 7 Scope of UAF Operations

### 7.1 General

In principle, the UAF's intention is to devote its resources as soon as possible toward achieving the Universal Access Objectives set out in Section 2 and the UAF Objectives in Section 3. The Authority has responsibility to define the UAF's Programs and to set priorities on an annual basis. The UAF will implement specific projects under each program during each Fund operating year. Industry and public stakeholders will be consulted in the development of the goals, scope and details of program and project design.

The Fund will seek to balance its activities and financing between the program and project initiatives within the limitations of available budget and administrative capacity. For each year's operating plan, the Fund will determine, based upon consultations and market assessment, the appropriate allocation of funding for each program. The program allocations shall be approved by the ECA Board of Management. Priority areas and locations will be determined according to agreed, transparent criteria.

The UAF Program has been developed to address the phased priorities. Phase 1, the primary focus for the initial three (3) years, will address gaps identified in the current network infrastructure and main services. Phase 2 addresses the certain need for sectoral ICT and e-services development, and demand-support including ICT skills and capacity building, innovation, content and application development. Identifying the gaps for these areas and creating programs for UAF intervention shall commence in the second year of the Fund's operation and will be finalized once the characteristics of the market and user needs can be observed in the context of the broader proliferation of services, applications and provider activities that will emerge with the market liberalization process.

### 7.2 Adjustments in the Program to match available finance

The original program was designed on the assumption that the UAF would commence levying the 1.5% universal access charge from Year 1 of operations. However, the Authority exercised its right under powers conveyed by the UAF Regulation and as described in Section 5.3 of this Framework to:

- a) Allow a grace period of up to three (3) years during initial rollout of the new licensees network services; and
- b) Will establish a form of "Pay-or-Play" UAF Credits to cover the equivalent of UAF subsidies on universal access capital projects agreed by operators.

As a result, the scale and format of the Phase 1 Program has been revised to match available finance in the early years; the conditions of available alternate finance from the World Bank; and the need to commence by piloting proposed Stream 1 projects on the proposed Pay-or-Play model.

The following describes the original scale and intent of the Program which shall still take priority. The program will be rolled out in stages, commencing with the available short-term means of finance (i.e., the World Bank component and pay-or-play pilots) and then phase into scaled-up rollout as the main source of finance becomes in effect commencing in Fiscal 2024/25.

## 7.3 Phase 1 – Addressing Existing Network and Service Gaps

### 7.3.1 Stream 1 – Reaching the Most Under-Served Communities

This program targets provision of subsidies for new infrastructure build-out to Woredas, and to specific Kebeles within each Woreda, that are beyond the level of effective coverage already reached by Ethio telecom. According to the gap study referenced in Section 3.3, only 56 Woredas (5%) have less than 90% population coverage and 10 (1%) have less than 50% coverage at 2G, while 248 Woredas (24%) have less than 90% coverage and only 47 (5%) have less than 50% coverage at 3G.

Table 7-1 summarises the regional distribution of these gaps which need to be addressed.

Region	2G Services			UMTS (3G) Broadband		
	Below 50%	50-75%	75-90%	Below 50%	50-75%	75-90%
Afar	1	1	3	7	6	11
Somali	8	6	12	28	20	19
Gambela	1	1	-	2	1	1
Benishangul Gumuz	-	-	5	-	2	8
Amhara	-	-	1	1	11	20
Oromia	-	3	5	5	24	37
SNNPR	-	-	5	2	6	17
Tigray	-	1	3	2	3	10
Sidama	-	-	-	-	2	1
Dire Dawa	-	-	-	-	-	-
Harari	-	-	-	-	-	2
<b>Totals</b>	<b>10</b>	<b>12</b>	<b>34</b>	<b>47</b>	<b>75</b>	<b>126</b>
<b>Totals per class</b>	<b>56</b>			<b>248</b>		

All underserved areas are largely in regions of low population density. The most underserved areas (i.e., less than 50% coverage) are almost all in the border regions of the country.

Since it is unlikely that the new licensee(s) will reach or exceed the furthest coverage boundaries of Ethio telecom's network in many zones, even by their fifth year of rollout, it is possible that Ethio telecom could be the sole operator interested or capable of responding to the majority of opportunities in this program.

However, it is expected that the backhaul upgrade program (Stream 2) may have the effect of speeding up new licensees' rollout and interest in some areas, enabling them to compete for some Stream 1 target areas in combination with competing for backbone subsidies. This may be particularly so under the adjusted Phase 1 Schedule and revised Program, including the World Bank financed Borderlands Project combining Stream 1/Stream 2 investments described in Section 7.3.3.

#### **Cost of the Program**

Total subsidies projected for under-served woredas in the Stream 1 program based on the 2021 ICT Gap Study (summarised in Table 7-1) lie in the range of US\$ 20M for expansion in all underserved areas with less than 75% population coverage at 2G today, plus up to US\$ 11M for extending coverage of broadband in woredas with 75-90% population coverage. These estimates are based on practical and simplified solutions in many cases rather than full coverage. Considerable consultation will be required to determine the degree of coverage feasible in many areas where it will may not be economically sustainable to reach even 80% of the uncovered populations in those areas.

**Fig. 7-1: Uncovered areas in Afar**

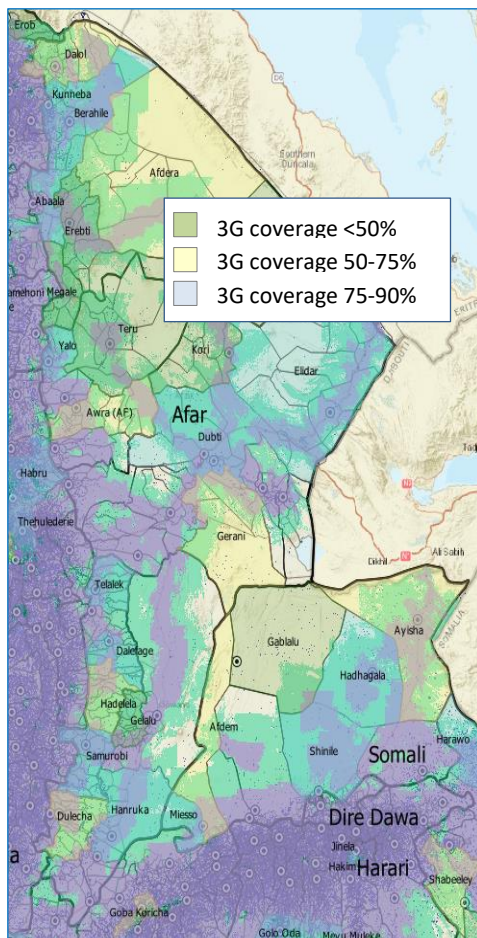


Figure 7-1 illustrates the need for consultation in designing Stream 1 gap projects, using the case of Afar and the Northern part of Somali region as an example.

In cases with large gaps and sparse population such as observed here, the project specification, with the help of regional consultation, shall identify specific kebeles, routes and habitations in each woreda and shall seek to develop targets for subsidized coverage that reach the main villages or population concentrations still uncovered, while recognising the economic constraints and challenges of these low-density areas.

In most border area woredas, the 2G signal coverage is much better than broadband. Therefore significant improvements in broadband coverage can likely be made through optimising the broadband signal and upgrading the sites through antenna placement, backbone enhancement at existing towers, before the building of new towers is considered. The same pertains to almost all regions with poorly covered woredas as summarised in Table 7-1.

### 7.3.2 Stream 2 - Mobile Network Backbone Enhancement and Expansion

The Fund shall target backbone augmentation, specifically a large-scale program of fiber connectivity to those existing 3G Node-B sites which are primarily located in rural areas and currently connected by microwave, as well as to new sites proposed by the incumbent or new entrant operator. All links and all sites benefitting from the UAF funded upgrade must provide open access as also envisaged by the Authority’s Infrastructure Sharing and Collocation Directive.

The objectives and benefits of a widespread fiber transmission upgrade program to all market participants are the following:

- a) Removal of transmission-related data throughput constraints on the existing network, enabling all sites to meet forward-looking targeted customer data speeds of 10 Mbps before 2025, for any operator sharing the sites;
- b) Prepare the way for upgrading of sites to 4G to meet these reasonable targets, by subsidising commercial service transmission, where justified, to non-urban sites to ensure universal access and service;
- c) Provide a high performance, transmission backbone for tower sharing and open access in the liberalized market. The existing extensive network of Ethio telecom sites is a national asset which needs to be upgraded and made available to all operators, but new sites also must also be considered in the same way.

The UAF will provide subsidies for optical fiber deployment to mobile sites in specified rural operating zones, to both incumbent and new licensee applicants. These subsidy



contracts shall be initiated through a form of open competition, commencing even before the UAF receives income from operator levies. The first subsidies offered under the initial set of pilots, shall therefore become UAF credits (effectively Pay-or-Play investments in kind) to reduce the balance of UAF levies to be paid on licensee annual accounts.

As noted in Section 3.3.5, the Authority has estimated the notional maximum total route-kilometers of fiber upgrade required to connect up to 5,280 non-urban sites based on a step-by-step, least-distances to connect all sites to the nearest existing fiber node. For practical purposes, only half to two-thirds of the total (maximum 3,500) would actually require upgrade to fiber for efficient backhaul of broadband services. The remainder, especially those reaching into the furthest, more remote rural sites, would economically utilize existing or newly supplied broadband digital microwave (IP radio).

Based on an average, competitively supplied *maximum* cost of US\$5,000 per kilometer and subsidizing 100% to the four least economic regions<sup>12</sup> and up to 50% elsewhere, the total cost has been estimated at approximately US\$ 90 -100 million.

### 7.3.3 World Bank financed Phase 1 Component

In response to discussions with the World Bank regarding partial program finance for UAF's Phase 1 program in Years 1-3, the Authority has been invited to apply for UAF funding under the Eastern Africa Regional Digital Integration Project, of which Ethiopia is a main partner. In order to activate this support, the UAF must develop projects that are aligned with World Bank and regional agreements for digital integration, especially for the Horn of Africa.

In the context of these strategic alignments and contributing to meet the Bank's IDA19 Digital Commitments, the Project Development Objectives (PDOs) for the regional project are the following:

- a) Increase in the number of unique mobile broadband subscribers, in the region and in participating countries (of whom, female users);
- b) (Support) number of regional agreements and instruments relating to digital market integration (enabling environment);
- c) Increase in the volume of cross-border digital payments; and
- d) Service providers are able to digitally verify the identities of people from another country (in at least two countries of the region).

Additional World Bank requirements for UAF infrastructure development at this time include that projects must focus on creating a direct humanitarian impact in the border regions. The regional project's expectations, as well as aligning with UAF objectives, are best met through a project to upgrade broadband to LTE / 4G in the borderland areas hosting refugee camps.

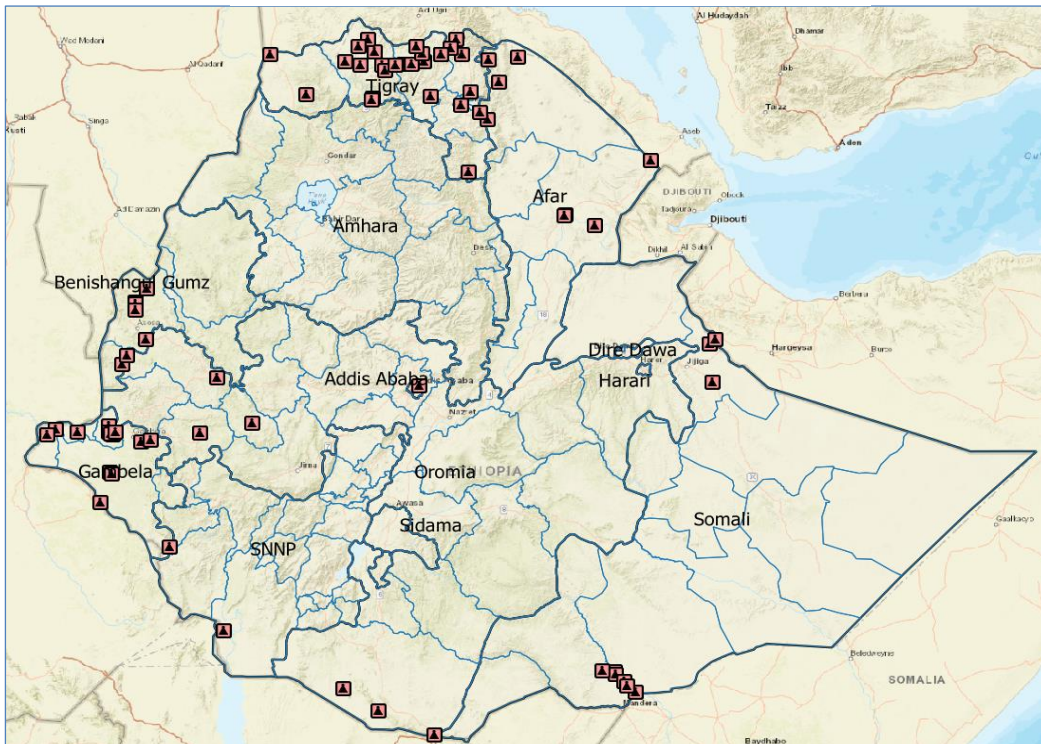
Figure 7-2 indicates the location of all refugee camps in all regions of Ethiopia. Ethiopia is the third-largest refugee-hosting country in Africa, sheltering 806,374 registered refugees and asylum-seekers as of 31 Oct 2021<sup>13</sup>.

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<sup>12</sup> Afar, Benishangul Gumuz, Gambela and Somali Regions

<sup>13</sup> UNHCR Fact Sheet on Ethiopia, October 2021

**Fig 7-2: Location of Refugee Camps** 



The overwhelming majority of refugees originate from South Sudan (48%), Somalia (27%), Eritrea (19%) and Sudan (6%). The official Ethiopian response to the refugee situation is well documented in the *Ethiopia Refugee Response Plan, 2020-21*. This includes a multi-sectoral commitments and inter-agency collaboration in Security/Protection; Health; Education; Water, Sanitation & Hygiene (WASH); Shelter; Energy and the Environment; together with Child Protection and Sexual & Gender based Violence (SGBV).

The areas hosting refugees also have many encampments of Internally Displaced Persons (IDPs). UNHCR is strongly assisting response to the IDP situation of in Ethiopia, co-leading the Protection and Camp Coordination & Camp Management (CCCM) Clusters program and providing protection, emergency aid and other support to IDPs and IDP returnees.

The UAF project will seek to support all agencies with high quality broadband as well as enhancement of direct ICT support in all key areas, especially health and education.

**Project Description**

The UAF’s World Bank financed *Borderlands Refugee Inclusion Project* will thus target providing enhanced connectivity through upgrading the broadband services at least to LTE/4G, supported by fiber backbone upgrades and broadband digital microwave links, to serve specifically 23 refugee camps and their host communities, as well as camps hosting IDPs in the same areas.

The targeted areas cover:

- 14 refugee camps located in seven woredas in Gambela, and
- 9 camps in five woredas of Somali region.

Together these investments will cover 75% of all the cross-border refugees hosted by Ethiopia, from South Sudan and Somalia. The project will also include a number of access-

enabling activities targeted at increasing refugee inclusion through digital literacy training; special Wi-Fi hotspot and public access facilities; and supporting the ICT applications and financial transfer services directed at the targeted outcomes (PDOs) of the project and of the WBG’s IDA19 Digital Commitments.

The project will also include provision of community access facilities for schools, community associations, hospitals, etc., in host communities.

Overall cost if this first phase project is projected to be in the range of US\$ 14-15 million, taking account of CAPEX and five (5) years OPEX support and will be tendered on a reverse auction, smart subsidy basis in accordance with UAF guidelines.

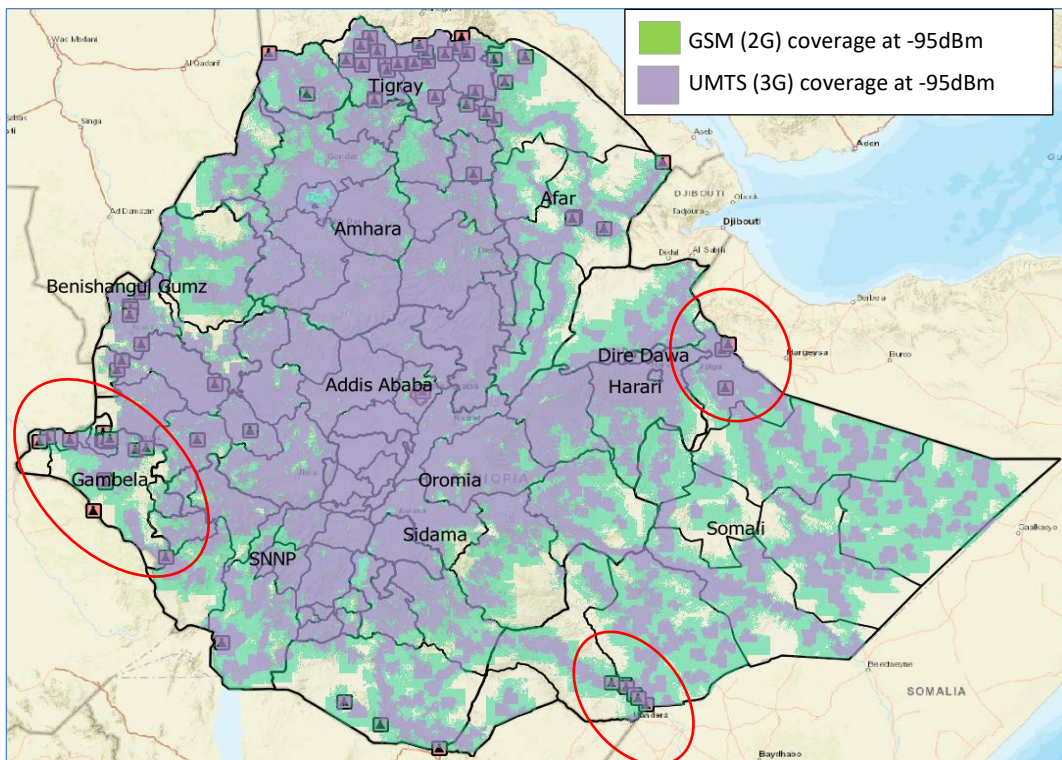
**7.3.4 The Target Areas**

The project will be deployed in the following regional areas, as shown in Figure 7-3:

- a) **Eastern Gambela** - fourteen (14) camps in seven woredas;
- b) **Northern Somali** - three (3) camps near Jiljiga in Awe-Bare woreda and Kibribaya Town;
- c) **Southern Somali** - six (6) camps in Melkadida: Dolo Odo and Bokolmayo woredas.

Additional UAF investments targeting refugee encampments near the borders with Eritrea, Sudan and Kenya will be considered for sourcing from World Bank regional finance in subsequent years.

**Fig. 7-3: Three refugee camps project areas in relation to existing mobile**



In summary, the borderlands project will combine the development objectives of the regional project with the most advanced service targets of the UAF’s Phase 1 program in three specific areas and also include features of the Phase 2 Program, thus effectively enabling UAF to pilot early roll-out of sectoral and demand-side support components ahead of the original plan, in the Borderlands areas.

## **7.4 Phase 2 – Sectoral and Demand-side Support Projects**

Because of the delay in the main source of UAF's financing, combined with the demand-support opportunities created by the World Bank Project, the UAF shall initiate an internally funded planning study into all potential components and activities of the Phase 2 Program. The study objectives will include:

- (i) Creation through field visits, research and study, a database of indicators specifically relevant to UAF's targets for population access; closure of human gaps for disadvantaged and marginalised groups; and the status of critical ICT access in the education, health, agriculture and other sectors (to be defined); and
- (ii) Formulation of an initial Plan of Action for roll out of UAF's Phase 2 Program activities, addressing identified market gaps; digital literacy and human access gaps; and critical network development in education (e.g., schools Internet), health and other sectors in need or support.

The following are the components of the Phase 2 Program, which on a national level can only be commenced on a relatively small scale after the UAF's main funding source (operator universal access levies) starts to accumulate in Fiscal 2024/25.

### **7.4.1 Stream 3 - Sectoral ICT Development Projects**

The UAF shall consider adding to its program the provision of support to public institutions, i.e., to schools and higher education, health facilities and other organizations serving public socio-economic infrastructure needs and services, if they require support for ICT connectivity needs.

The UAF will not seek to create or financially support projects unless they originate from the sector organizations (i.e., Ministries and government agencies). These agencies themselves need to develop ICT strategies, curricula and facilities to fulfill their primary objectives.

Whereas the UAF shall initiate dialog, support will thus be in response to identified needs that relate primarily for provision and funding of communications, such as broadband Internet connectivity or specific user applications which support the agencies' prime objectives.

### **7.4.2 Stream 4 - Digital Literacy, ICT Capacity Building and Awareness**

These demand-support initiatives create increased market development and viability, as well as deepening and making more inclusive the reach of universal access and benefitting the users of ICT services.

After the first three years of UAF operation, during which the infrastructure rollout and state of the liberalized market shall be monitored and the experience of the Borderlands Project evaluated, the UAF will expand its role to support capacity building projects, particularly in the field of education and community ICT awareness and sensitisation. For this purpose, the Fund administration will establish relationships with qualified private and public ICT training organizations, including university-based groups and non-government organizations with skills to offer for literacy and capacity building projects in identified under-served geographic areas of the country.

Projects may include hands-on training classes, public awareness raising events, assistance to local entrepreneurs, and/or both user and management training in public institutions. The goal will always be to ensure that new users in these communities and

persons with disabilities have the best opportunity to benefit from technologies as they become available.

#### **7.4.3 Stream 5 - ICT Content and Applications**

The UAF will also monitor the perceived need for content and applications development and, as appropriate, will consider collaborating with other organizations and projects that focus on supporting development of content and applications of value to rural and underserved communities, especially in local languages.

These targets for support may include websites, mobile applications, educational and training materials, interactive and multimedia applications for special needs users and language groups, as well as other targeted ICT content. The Fund will primarily look to co-finance development projects that arise from potential partner organizations, serve priority needs, and aim to become self-sustaining and commercially viable after UAF support.

#### **7.4.4 Stream 6 - Special Projects**

The Fund may undertake certain special projects not originated internally but arising from any source that merits financing through the UAF, including the sponsors of community networks, for which Community Licenses will be available under the Licensing Framework. These approaches, perceived to be largely from various non-Government and Civil Society organisations for initiatives which could include community networks, must be consistent with the Fund's priority objectives of universal access, overall communications market development and fulfillment of the demand and need for ICT services across the populace.

For each special project, prior to approval the Fund administration will solicit ideas, inputs, requests and business plans from stakeholders, and prepare a tentative project plan for public comment. Details of the proposed project(s) will be open to scrutiny, including locations, services, beneficiaries, other terms and conditions. Every effort shall be made to put special projects to competitive auction, however if such an auction is not possible or feasible because of the nature of the special project, then this decision will also be subject to public input and comment.

The Fund administration shall set a maximum limit (percentage) of total Fund annual resources on the financial amount that can be assigned to special projects during any given year.



## 8 Financial Requirement and UAF Levy Plans

### 8.1 ICT Gap closure financial needs

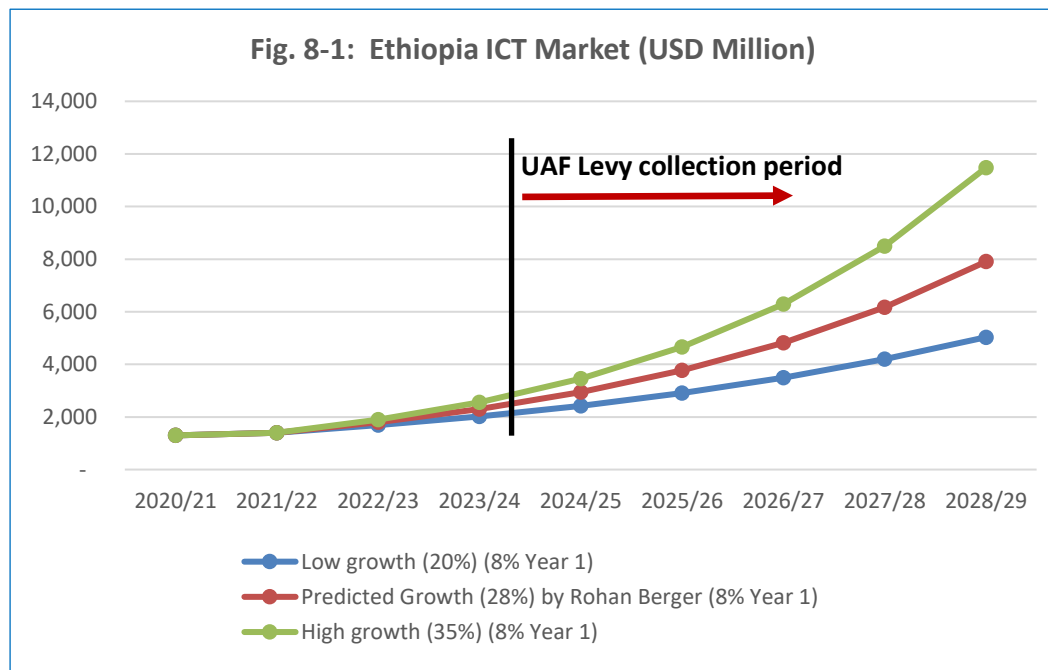
The original required subsidy expenditures for Phase 1 were revised downward following the Gap Study and latest local cost estimates for fiber route construction received from the incumbent in Q1 2022. The adjusted total five (5)-year program cost, almost all of which is currently projected for the Stream 1 and 2 programs, could reach US\$ 120-140 million if all aspects of the investments are targeted and achieved in a timely fashion.

As discussed in Section 7, the pattern and schedule for Phase 1 and 2 program expenditures have been modified by the financial circumstances following agreement of the grace period and need to be flexible in order to adapt to the available finance.

### 8.2 ICT Market size and funding resource timescale

Ethio Telecom’s 2020/2021 total revenue was reported in June 2021 as approximately ETB 56.5 bn (USD 1.3 bn), as the market’s starting point. This was projected to grow modestly for the first year (assumed to be 8%). The overall ICT market revenues post-liberalization have been projected, from evidence-based research, to grow at a rate of 28% after market liberalization<sup>14</sup>.

Figure 8-1 shows the market from which levies will be drawn, following the 3 year grace period. The figure shows market size with three growth scenarios: low, medium (predicted most likely) and high.



Considering that initial expectations were for two new full-service operators to enter the market in 2021, the most conservative expectation of market growth (i.e., the low scenario) might be the most reasonable assumption. According to this assumption, it is estimated that the total market will cross USD 2bn in Fiscal 2023/24 and reach US\$ 2.4 bn in Fiscal 2024/25, the first year of the universal access levy collections. The market will likely reach at least US\$ 3.5 bn by 2026/27 (ranging up to US\$ 4.8 bn in the medium growth scenario).

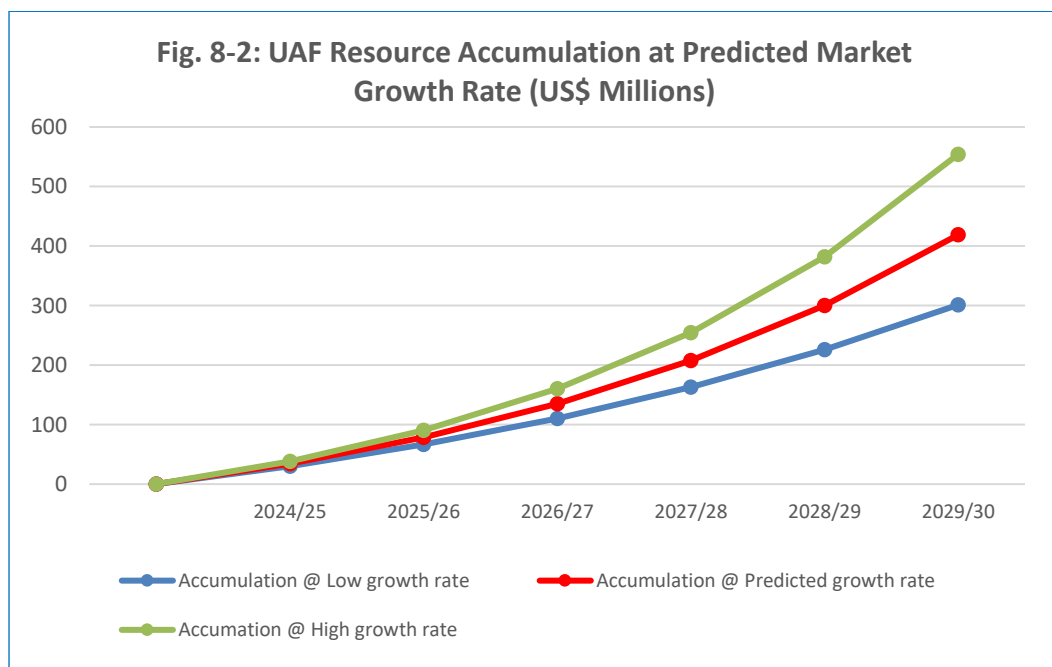
<sup>14</sup> See Privatization consultant Roland Berger’s projection.

### 8.3 Levy Benchmarks and African experience

The Authority made an assessment of what level operator levy would best fit with international and African benchmarks and best-case experience, while providing a manageable income to the UAF and meet reasonable projections for needed UAF investments. Based on evaluation of the most credible African benchmarks and best cases examples of successful performance, a level of one percent (1%) is the most supportable. However, based on the requirement to provide for Stream 1 and 2 program investments, if they can be rolled out to their maximum potential, the Authority fixed the maximum levy at 1.5%, with provision to reduce the levy as authorised by the UAF Regulation if the UAF programs are not meeting their distribution targets (See Section 5.5).

### 8.4 Projected UAF income and capacity to invest

Figure 8-2 shows financial accumulations at 1.5% of gross revenue for the three possible growth scenarios over a projected 5-year levy collection period commencing in Fiscal 2024/25.



In summary, at the levy collection rate of 1.5% on gross revenues at the median projected growth rate, the projected UAF income is projected to commence at a minimum of US\$ 30.3M in Fiscal 2024/25 and grow to US\$ 52.9M in Fiscal 2028/29. The Fund will accumulate a minimum of US\$ 110M in the third year (Fiscal 2026/27), reaching US\$ 225M in the fifth year as shown in Table 8-1.

Table 8-1: UAF Projected Levies and Accumulation (US\$M)					
Projected Levy Collections	2024/25	2025/26	2026/27	2027/28	2028/29
- Low growth rate	30.33	36.39	43.67	52.40	62.88
- Predicted growth rate	34.50	44.17	56.53	72.36	92.62
- High growth rate	38.38	51.82	69.95	94.43	127.49
<b>Accumulation</b>					
- Low growth rate	30.33	66.72	110.39	162.79	225.68
- Predicted growth rate	34.50	78.67	135.20	207.56	300.19
- High growth rate	38.38	90.20	160.15	254.58	382.07

Based on the revised subsidy estimates in Section 8.1, the UAF's Five-Year Strategic Plan 2021/22–2026/27 projects that around 90% of the minimum projected Program Subsidies will be met by Year 5 (2026/27) at the low market growth scenario. Costs would be about fully met if the medium (expected) growth scenario materialises.

All currently projected subsidy costs will be more than 100% met under the minimum growth scenario by Year 6, while an expansion of the relatively small early Phase 2 investments can be expanded by that point.

## **8.5 Provision for future levy reduction**

The UAF Regulation provides for annual charges to be reduced proportionately if the UAF accounts record that the Fund is unable to sustain budgeted investment commitments or disbursements beyond seventy-five percent (75%) of the revenues collected into the UAF for two consecutive years.



## **9 Project Planning and Implementation**

### **9.1 Project Development Criteria**

The Authority will develop the scope, location, and details of specific projects to be implemented under the UAF programs, in consultation with industry and local stakeholders. The Fund will not finance projects in locations that can be commercially served by competitive market players on their own.

The Authority will regularly review the status of market development, plans and rollouts, and the scale and nature of gaps in network and service access, as an input to the UAF project planning process.

### **9.2 Project Plans**

The Authority shall prepare annual project plans for each program, in consultation with potential beneficiaries and industry. Each plan shall include a clear description, applicable service requirements, specifications and standards, implementation timetable and any special commercial terms that would have an impact on the feasibility or business planning for the implementing contractor. Where the project is such that it would be auctioned with a reserve price, the project plan shall also identify the maximum subsidy amount.

### **9.3 Eligibility Criteria for Fund Applicants**

In the bidding process for projects requiring provision of infrastructure, connectivity and service, only operators duly licensed by the Authority shall be eligible to participate in the competitions for the major Phase 1 competitions.

A licensee shall be disqualified from taking part in a tender if it:

- a) Defaults in payment of its net UAF contribution owing; or
- b) Has failed to complete previously awarded contracts.

Other specific eligibility and qualification criteria will apply to Phase 2 projects, to enable a broader participation by entities which have the skills to further the UAF's inclusive universal access agenda, while ensuring that only well qualified participants may compete for UAF financed projects.

Public sector entities and other non-licensees may be eligible to bid for training, digital literacy, content development for Phase 2 program and special projects relating to ICT services and applications, if such systems or services do not require a license from the Authority.

### **9.4 Competitive Bidding Framework**

Principles contained in the Federal Public Procurement Directive (2010) of Ethiopia or subsequent legislation shall inform or govern the competitive bidding process for UAF project contracts. However, where contracts could be categorized as Pay-or-Play, UAF credit or limited to specific players, the Authority shall identify the aspects that must be compliant with standard procurement rules and that are non-standard and justified under the specific objectives of the UAF.

The Authority shall prepare a Bidders' Information Package which shall be provided to all interested eligible bidders. The Package shall include detailed information about the

project, instructions to potential bidders on how to participate, eligibility requirements, format of bid submissions, and amount of bid bond if appropriate, any applicable reserve price and any other requirement of the bid.

In accordance with the general guidelines and principles, UAF competitions are usually technology-neutral in setting out project requirements and evaluations. However, for Phase 1, in the case of backbone augmentation, there will be an expectation that optical fiber should take priority. Alternative technology such as broadband IP microwave links may be allowed where total potential bandwidth required clearly does not exceed capacity, or physical barriers such as terrain dictate the economic solutions.

Evaluation of bidders' technical submissions to ensure that proposed solutions comply with project requirements will rigorously consider delivery alternatives that meet the needs of specific network architecture and capacity definitions. In all UAF competitive procurements, including for UAF credits, only the technically qualified bidder submitting acceptable proposals and requiring the least subsidy shall be awarded UAF contracts.

If any collusion among bidders is suspected, the Authority shall have the right to cancel the bid and subsequently re-bid. If no bid is received, the Authority shall discuss with the licensees the reasons and review the bidding process and constraints accordingly.

## **9.5 Environmental and Social Framework (ESF)**

Public tenders shall include a requirement for bidders to comply with the Environmental and Social Framework (ESF) as defined by the World Bank Group, as well as Ethiopia's Resettlement Policy Framework (RPF). This will require bidders to commit to developing an Environmental and Social Management System to govern their activities, whether implemented directly or through sub-contractors.

The system shall include the elements:

- a) Health & Safety: Identifying and managing occupational health and safety risks.
- b) Impact on Land and Assets: compliance with the E&S Standards for temporary or permanent impacts upon land use or other assets, when constructing telecommunications infrastructure or accessing rights of way in accordance with the Directive on Use of Land and Building for Telecommunications Lines.
- c) New Infrastructure: When constructing new infrastructure, either directly, by sharing or contracting, (i) applying siting criteria that avoid sensitive biodiversity, involuntary resettlement or impact on cultural heritage, (ii) obtaining prior and informed consent of persons where cultural heritage or traditional land and resources are affected, consistent with Applicable Laws and Regulations and the E&S Standards; (iii) developing a mechanism to engage all stakeholders affected by proposed siting; and (iv) allowing for a mechanism to address objections or grievances.

## **9.6 Monitoring and Evaluation**

The Authority shall implement a robust Monitoring and Evaluation Framework to oversee all UAF financed projects, which is further elaborated in the UAF Five-Year Strategic Plan. This shall include regular onsite and offsite monitoring and data collection from all projects to make sure that the funding is being utilized in accordance with the contracts.

In addition, the Authority will undertake impact evaluation studies to assess the performance of UAF projects, and whether the UAF programs in general are meeting their objectives. A full Program Review shall be carried out in Year 5 to assess the results and

impact of the priority programs and nascent secondary programs prior to developing the UAF investment plan for subsequent years.

Further, the evaluations will be used to assess the effectiveness and impact of UAF programs towards the achievement of the universal access goals and in helping to meet the ICT and economic growth targets of the Government of Ethiopia.