



የኢትዮጵያ ኮሙኒኬሽን ባለሥልጣን
ETHIOPIAN
COMMUNICATIONS AUTHORITY

The Federal Democratic Republic of Ethiopia
DIGITAL ETHIOPIA FOUNDATIONS PROJECT

TERM OF REFERENCE (TOR)

To

Conduct a nationwide assessment of broadband network infrastructure to identify gaps in service access, develop initiatives to address these gaps, and assist in implementing the Universal Access Fund Strategy.

September 2025

1. Background

The importance of Information and Communication Technologies (ICT) and telecommunications for sustainable development is recognized worldwide, and they are considered essential for achieving Sustainable Development Goals (SDGs). The three pillars of sustainable development - economic development, social inclusion, and environmental protection - require ICT and telecommunications as key catalysts (ITU).

ICT delivers social and economic benefits to the masses, breaking the cycle of poverty and eliminating social divides. It is an enabling technology and a powerful tool that brings applications to facilitate communities, businesses, and governments in achieving economic and social growth. Recent research indicates that ICT fosters GDP growth, creates jobs, stimulates innovation, and improves education, healthcare, and social services.

To achieve these benefits, governments around the world are implementing comprehensive nationwide plans and highly focused Broadband Programs and projects coupled with strategies that ensure the availability and affordability of ICT services for all levels of society, including un-served and underserved citizens residing in rural and remote areas of the country.

The economic reform implemented by the Ethiopian government six years ago (2018) has had an impact on various economic sectors, particularly focusing on the telecommunications market that had been under a monopoly for a significant period. As a result, the Ethiopian Communications Authority (ECA) was established as an independent federal government institution under Communications Services Proclamation No. 1148/2019. The main role of the ECA is to regulate different ICT sub-sectors, such as telecommunications, cyber security, e-commerce, and postal/courier services. Additionally, the ECA is also responsible for protecting consumer interests in ICT services, ensuring data privacy and protection, managing frequency spectrum allocation, overseeing national domain name registration, managing numbering resources, establishing and managing the UAF, and setting the objectives of the Fund. This fund aims to support service providers operating in economically unviable rural and remote areas in the country.

The Universal Access Fund (UAF) was established under Communications Service Proclamation No. 1148/2019, Article 49, Subsection (3), with the aim of promoting universal

accessibility, availability, and affordability of communication services for all citizens, including women, persons with disabilities, and elderly individuals.

The specific objectives of the UAF, as outlined in the fund's regulations and in the five-year strategic plan for the period 2021/2022-2026/2027, aim to build upon the current level of provision and achieve Universal Access and Service as follows:

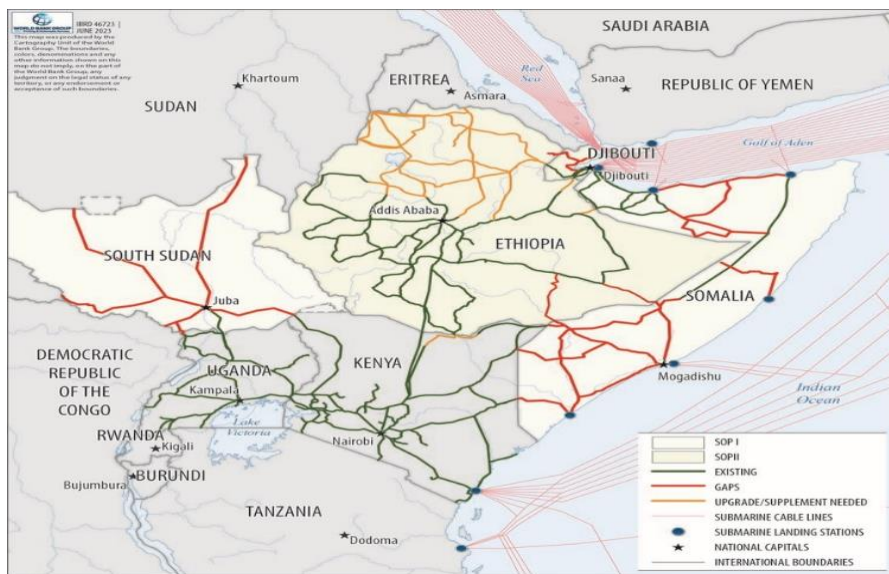
- a) Promote the extension of mobile telephony and broadband communications infrastructure and services to all administrative levels of human population in Ethiopia, in particular to rural and remote un-served and under-served areas;
- b) Promote and facilitate the national integration of networks and services, e.g., by the improvement of backbone facilities to create an open-access broadband network reaching a more ubiquitous quality of service delivery deemed to be the minimum for achievement of Universal Access;
- c) Promote and support activities assuring inclusivity, i.e., availability of services to all socio-economic segments of society, in particular person with disabilities, women, elderly, and other vulnerable or marginalized groups;
- d) Support the development of capacity building in ICTs and technological innovation, where gaps in user capacity needing financial support are observed and identified;
- e) Support sectoral expansion of ICT services, including, but not limited to schools and higher education, health facilities and other organizations serving public needs; and,
- f) Facilitate content development which will provide improved and beneficial access to under-represented people and socio-economic activities.
- g) Support communications infrastructure projects that aim to reduce the digital divide between urban and rural areas in country and fulfill its mission across all regions. The goal is to achieve the fund's objectives in all regions and zones of the country by effectively using its resources and reaching communities in every district.

The ECA will begin collecting the UAF levy from operators in July 2025, within a year. Prior to this, the ECA intends to hire a consulting firm, using funds from the World Bank's Ethiopian Digital Foundation Project (EDFP), to conduct a comprehensive assessment of the mobile network infrastructure and service gaps in order to identify areas in the country that currently lack coverage or are not adequately served. Following the assessment, the firm will develop universal access and service programs and projects that meet the criteria for funding from the Universal Access Fund (UAF) and will also prepare the necessary procurement documents. Once funding is secured, these projects will be allocated to operators through an auction process.

2. The East African Regional Digital Integration Project (EARDIP-2)

The East African Regional Digital Integration Project (EARDIP-2) is an initiative consisting of a series of projects. Phase I of the project includes Somalia and South Sudan, while Phase II involves Ethiopia and Djibouti. The main goal of the project is to promote the expansion of an integrated digital market across Eastern Africa by increasing cross-border broadband connectivity, data flows, and digital trade in the region, as well as improving affordable access to regional broadband connectivity and strengthening the enabling environment for cross-border digital services. This project will be financed by the World Bank through grants. The World Bank, along with its partners, conducted feasibility assessments of the project and engaged in discussions with the beneficiary countries and stakeholders. Phase I of the project began in South Sudan and Somalia in July 2023. Phase II of the project also received approval from the World Bank in December 2024, and implementation of the projects has already started in Ethiopia and Djibouti since February 2024.

Map-1 Priority Routes Identified, taken from EARDIP World Bank document



The main focus areas of the EARDIP-2 in Ethiopia are:

- To add missing links to the country and improve existing ones with its neighbors such as Kenya, Djibouti, and Southeast Somalia. This will involve enhancing national backbone and local microwave link capacity.
- To Rehabilitate the damaged telecommunication infrastructure in conflict-affected regions of Tigray, Amhara, Afar, Oromia, and Benishangul.
- To improve and extend Last Mile connectivity for mobile networks in refugee camps in the regions of Gambela, Somali, Benishangul, Tigray, and Afar, as well as in host

communities and adjacent IDP areas.

3. The objective of the assignment

The primary objective of hiring a global consulting firm with expertise in universal access to telecommunications services is to conduct a comprehensive evaluation of the gaps in the nation's broadband and mobile network infrastructure and services. The firm will also identify obstacles to service accessibility and systematically pinpoint, map, and document these deficiencies. Additionally, they will develop and implement initiatives related to the Universal Access Fund in order to address these gaps. Moreover, the firm will prepare procurement documents, award project contracts, oversee project management, monitor progress, and assist ECA in implementing the Five-Year Universal Access Fund strategic plan.

This initiative aims to ensure that all citizens, especially those in rural and remote areas with insufficient coverage, have equal access to telecommunications services. These efforts are crucial for promoting social inclusion, stimulating economic development, and enhancing overall quality of life. Although the consulting firm will take on extra tasks and responsibilities, these objectives are still top priorities.

a) Review and Conduct a Nationwide Detailed Network Access Gap Analysis.

The following activities need to be conducted in order to conduct a comprehensive analysis of the current state of the telecommunications infrastructure across the nation:

- **Define Objectives and Scope:** Clearly outline the goals of the assessment, including specific questions to answer regarding network access gaps. Determine the geographical scope and target demographics of the assessment.
- **Document Review:** Examine documents such as the Universal Access and Service Framework, Universal Access Fund Strategic document 2022/27, the 2021 access and service gap study, and the Universal Access Fund Regulation documents to gain a clear understanding of the development of network coverage and access gaps in the country.
- **Conduct Baseline Assessment:** This process involves gathering quantitative and qualitative data on the current network infrastructure and coverage, service availability, user demographics, and business activities in the area. This may include surveys, interviews, focus groups, and analyzing existing operators mobile network datasets.

- **Utilize Reliable GIS Tools:** Utilize reliable GIS tools that consider terrain features such as mountains, forests, landscapes, and rural populations to gather coverage gaps

b) Identifying Network Access Gaps

Once the data has been collected, the next step is to identify specific gaps in network access.

This involves:

- **Create Own Mobile Network Coverage Map:** The consulting firm is responsible for creating an independent network coverage map using specialized mobile coverage prediction tools and the latest mobile network cell file data (2G, 3G, 4G, and 5G) obtained from operators in the country. They will also conduct a comparative analysis between the generated coverage map and those provided by the operators for fact-checking.
- **Analyze Network Access Gaps with data analysis tools:** Analyze the gap assessment data using data analysis tools or statistical methods to identify areas with no or limited network coverage. This may involve using geographic information systems (GIS) to visualize the gaps. The goal is to clearly identify and pinpoint the areas that are not fully or adequately served, including location maps, existing mobile network coverage and service levels, area sizes, economic statuses, available power sources, population settlements, and their geographic locations.
- **Gap Identification:** Analyze the data to identify and map regions or populations at the lowest administrative level of the country that are underserved or not served by current telecommunications service providers.
- **Geospatial Analysis:** Utilizing Geographic Information Systems (GIS) to map out areas with no coverage or lacking adequate telecommunications services.
- **Stakeholder Identification:** Identify the main stakeholders, including government entities, telecommunications providers, community organizations, and end-users. It is important to involve these stakeholders at the beginning of the process to gather valuable insights and encourage collaborative efforts to understand local needs and barriers to access. This qualitative data can help enhance the context of the quantitative findings.
- **Identify and prioritize areas for intervention:** Based on an analysis of existing access gaps and community input, it is important to prioritize specific regions or populations in need of immediate improvements to the network. This process should

involve systematically ranking identified gaps using criteria such as population density, economic activity, and social vulnerability.

c) Creating initiatives to fill recognized Connectivity gaps

With a clear understanding of where the gaps exist, the consulting firm will develop targeted projects aimed at bridging these gaps. This includes:

- **Formulate Project Proposals:** Develop detailed project proposals that are eligible for subsidies from the Universal Access Fund (UAF) in order to address identified gaps in the rural and remote areas of the country. Each proposal should include objectives, expected outcomes, timelines, and resource requirements. Formulate project proposals that are eligible for subsidies from the Universal Access Fund (UAF) to address identified gaps.
- **Budget Estimation:** Create a budget for each proposed project that details costs for capital expenditure (CAPEX) and operating expenditure (OPEX) based on market rates and resource requirements for infrastructure development, as well as potential sources of funding.

d) Creating procurement documents

To facilitate the implementation of these projects, procurement documents must be developed. This includes:

- **Develop Procurement Documents:** Create procurement documents (Terms of Reference, Request for Proposals, etc.) that clearly outline project specifications for the development of mobile network infrastructure or the equipment needed for each project, as well as the evaluation criteria for potential contractors.
- **Compliance Guidelines:** Ensuring that all procurement processes adhere to national regulations and international best practices⁹ World Bank).

e) Awarding the development projects for mobile network infrastructure.

The consulting firm will conduct the awarding of the contracts through a transparent bidding process:

- **Issue Requests for Proposals (RFPs):** Distribute RFPs to potential contractors or service providers in accordance with procurement guidelines established in previous steps.
- **Establish Bid Evaluation Criteria:** Establish clear evaluation criteria for assessing bids from contractors or service providers who will be executing the projects. This criteria should encompass technical capabilities, cost-effectiveness, and past performance.
- **Evaluate Proposals:** Assess submitted proposals against established evaluation criteria involving a panel of experts if necessary to ensure an objective selection process.
- **Contract Negotiation:** Facilitating negotiations with selected contractors to finalize terms of engagement.
- **Contract Negotiation:** Assisting in negotiating with selected contractors to finalize the terms of engagement. This includes selecting contractors based on evaluation results and negotiating contract terms that align with project goals while ensuring accountability measures.

f) Develop Project Implementation Plan

To ensure accountability and effectiveness throughout project implementation, robust monitoring and evaluation (M&E) guidelines must be established:

- **Develop Implementation Plans:** Collaborate with awarded contractors to develop detailed implementation plans that specify timelines, milestones, roles, responsibilities, and communication strategies.
- **Monitor Project Progress:** Establish a monitoring framework to track project progress against timelines and budgets throughout implementation phases using key performance indicators (KPIs).
- **Facilitate Awareness Creation:** Organize awareness creation sessions for community members involved in managing new infrastructure or services to ensure sustainability post-implementation.
- **Develop project outcomes evaluation guidelines:** After the project is completed, it is crucial to conduct evaluations to assess whether objectives were met in improving access levels and user satisfaction. This can be done through surveys or impact

assessments, following specific guidelines that will be developed by the consulting firm to effectively conduct the evaluation process.

g) Operationalize the Universal Access Fund (UAF)

The consulting firm has been assigned the task of creating a strategic plan that details how UAF resources will be allocated based on assessed needs from previous steps, while also ensuring ongoing stakeholder involvement in decision-making processes regarding fund distribution.

- **Fund collection plan:** Develop a Universal Access Fund collection plan ahead of its collection time and implement it.
- **Fund Management Structure:** Establishing governance structures for managing UAF resources effectively.
- **Funding Allocation Strategies:** Developing strategies for allocating funds based on identified needs and project priorities.

h) Capacity building and on-time assistance.

One of the main activities that a consulting firm can undertake in relation to this UAS consultancy project is capacity building for the ECA UAS section.

- The consulting firm is responsible for organizing capacity building trainings and international best practice and experience sharing sessions to enhance the skills of ECA's Universal Access and Service Personnel (Project Team).
- Assist the ECA with all activities related to Universal Access and Service initiatives, including those associated with the EARDIP-2 Series of Projects, most importantly, the consulting firm will provide support for the EARDIP initiatives that ECA is currently undertaking, as well as for any Universal Access and Service Projects related activities.

i) Documentations and Reporting

- **Report Findings and Recommendations:** Compile findings into comprehensive reports detailing successes, challenges faced during implementation, lessons learned, and recommendations for future projects or policy adjustments

In hiring an international consulting firm with expertise in universal access within telecommunications will facilitate a systematic approach to identifying network access gaps, developing targeted interventions, ensuring compliance with procurement processes, establishing robust monitoring mechanisms, and operationalize funding mechanisms like the UAF.

4. Main Expected outcomes of this consultancy

The expected outcomes of this consultancy include but are not limited to:

- Detailed report on the mobile and broadband network infrastructure and service access, gaps across the country.
- Identified list of the rural areas in the country, both covered and uncovered, with detailed information including region, zone, woreda, kebele, demographics, economic activities, proximity to fiber lines, availability of operators, and other relevant details for each uncovered and under-covered area.
- A coverage map created using updated mobile network data obtained from telecom operators in the country, covering all technologies (2G, 3G, 4G, and 5G). The consulting firm will be tasked with creating the mobile network coverage map for all mobile network technologies using its own simulation tool. The coverage map should include demographic and economic data, as well as other important indicators for each region down to the smallest administration level in the country (Kebele). A comparative analysis will be conducted between the coverage map created and the operators' coverage map.
- Developed strategies and implementation plans to address the identified gaps in supply and demand for mobile network access and broadband internet services.
- Estimated project costs and a preliminary budget for developing the communications infrastructure in areas of the country that are currently uncovered or under-covered, including both capital expenditure (CAPEX) and operating expenditure (OPEX), are required.
- Proposed regular practices to attract private sector investments in rural and remote areas with less viable telecommunications markets. These strategies aim to create an environment, partnerships, and institutional capacity necessary to develop broadband infrastructure and promote the use of high-speed broadband services by the population. The plan should be based on a comprehensive and quantitative assessment of usage,

- infrastructure, and investment gaps nationwide, as well as an evaluation of the required enabling environment and institutional capacity.
- The project has been designed for identified rural and remote areas, both uncovered and undercovered, and is ready to be subsidized by the UAF.
 - Drafted procurement documents for all identified uncovered and underserved areas in the country, especially those where telecommunications services are not feasible. The documents should be divided into sections, outlining project costs for each area, implementation plan, and other essential information.
 - Proposed and refined procurement models for conducting such activities, including utilizing multi-round reverse auctions on electronic auction platforms.
 - [Awarded and contract the project with oepe auction as well assist ECA in managing the project contract](#)
 - Implement the universal access and service infrastructure and service deployment project in rural and remote areas that are currently uncovered and underdeveloped. Undertake project monitoring and evaluation.

5. Scope of Work and Tasks to be performed

5.1. Scope of Work

The consultancy will involve a comprehensive evaluation and analysis of mobile and broadband network infrastructure to identify gaps in access and services nationwide. This undertaking will require the collection of updated data related to mobile networks, encompassing 2G, 3G, 4G, and 5G cell sites, fiber networks, microwave links, and international gateway capacities from operators. The consulting firm will conduct simulations of mobile network coverage (population and geographic), develop coverage maps utilizing its proprietary simulation tool, analyze existing coverage maps provided by operators, and compare these with the newly generated coverage map. Furthermore, Universal Access initiatives (programs and projects) aimed at addressing the access and service gaps within mobile and broadband network infrastructure will be identified and formulated. An assessment of capital expenditure (CAPEX) and operational expenditure (OPEX) will be undertaken for the programs and projects proposed for implementation in un-served and under-served regions. Priority areas for enhancing broadband connectivity will be established; incentive mechanisms outlined and project bid documents—including Terms of Reference—developed for rural and remote areas that necessitate subsidies from the Universal Access Fund.

Conduct a review, offer feedback on, and revise the existing universal access and service framework, as well as the five-year strategic plan for the universal access fund and the associated operational manual. Create local and on-the-job training programs alongside mechanisms for knowledge sharing targeted at ten staff members from ECA over a duration of ten days. Furthermore, organize an international training program and study tour for no fewer than six ECA staff members in at least one country with relevant experience, lasting ten days to facilitate the exchange of experiences and benchmarking. Provide assistance to ECA and the Universal Access and Service Directorate concerning additional universal access and service projects or any urgent regulatory matters. Additionally, develop a comprehensive work plan along with mechanisms for project monitoring and evaluation. Regularly provide updates regarding project progress and activity status in accordance with the established timeline while ensuring timely engagement with stakeholders as necessary.

Tasks to be Performed

The following specific tasks are envisaged to be performed as part of this assignment.

Task 1: Review the mobile network access gap conducted so far, and conduct a detailed nationwide analysis of the access gap

- a) **Document Review:** Examine documents such as the Universal Access and Service Framework, Universal Access Fund Strategic document 2022/27, the 2021 access and service gap study, and the Universal Access Fund Regulation documents to gain a clear understanding of the development of network coverage and access gaps in the country as well as the business conditions of operators and service providers.
- b) **Conduct Coverage Gap/Baseline Assessment:** This process involves gathering quantitative and qualitative data on the current network infrastructure and coverage gaps, service availability, user demographics, and business activities in the area. This may include surveys, interviews, focus groups, and analyzing existing datasets. This task will heavily rely on updated operators' data.
- c) **Mobile infrastructure:** The consulting firm should analyze the current status of the broadband and mobile network infrastructure such as the national and international fiber optic backbone network, backhauling, and last-mile connectivity, including copper or microwave links, base stations, satellite links, available capacity, and the affordability and reliability of services (2G, 3G, 4G, 5G networks, etc.)
- d) **Investments in digital infrastructure:** the consulting firm should identify the operator's current and future investments in digital infrastructure, such as expanding the

fiber backbone network and installing new base stations. This information should include details on coverage, capacity, purpose, users, timing, and ownership.

- e) **Data Representation:** The consulting firm will present the collected data in a format that is easily understandable and usable for policymakers. The firm should provide an Excel spreadsheet containing detailed information on infrastructure, detailed coverage maps for 2G, 3G, 4G, and 5G, along with precise calculations of detailed coverage rates (both territorial and population-based) for voice/SMS and broadband internet services for the entire country down to the lowest administrative level (Kebele).
- f) **Network Demand:** The Consulting firm is expected to conduct a comprehensive assessment of current demand and future forecasts for the entire country for the next 10 years. This assessment will take into account the types of digital services and segmentation of end users based on factors such as population density, age, gender, occupation, and purchasing power. The assessment will also include data at the district (Woreda) and Kebele levels in selected rural and remote areas. The consulting firm will compare connectivity gaps and demand forecasts with existing infrastructure capacity in the country, and propose options for developing new network infrastructure.
- g) **Programs and Projects:** In order to address the lack of access in rural and remote areas that are not financially feasible for the telecommunications market, the consulting firm should create and propose effective and expandable programs and projects that could potentially receive subsidies from the Universal Access Fund (UAF). The firm will also establish a national high-speed broadband network with sufficient bandwidth and capacity. Furthermore, the consulting firm will conduct a detailed technical analysis to evaluate different network technology options and identify the best combination for coverage, high-speed capacity, and costs. This analysis will also consider current and future investments in digital infrastructure.
- h) **Mapping the uncovered and under-covered areas:** This technical study must also map the proposed project sites and determine the distance from the nearest fiber node.
- i) **Alternative Power sources:** The consulting firm will also explore potential alternative power sources for mobile communication towers and base stations, especially in rural and remote areas where electricity is not available. Furthermore, the firm should investigate, explore, and propose potential technological solutions such as satellite facilities, for deploying infrastructure in regions of the country with challenging terrain.
- j) **List of areas requiring UAF support:** After conducting a gap assessment, the firm will identify and list areas that need assistance from the UAF to stimulate private investment in enhancing digital connectivity.

- k) Criteria for categorizing areas as Un-covered or under-covered:** The consulting firm should develop criteria to categorize areas, especially in rural and remote areas, as uncovered and under-covered. This will help prioritize and organize these villages into optimal parcels for competitive bidding.

Key Deliverables

The consulting firm is expected to produce a detailed and comprehensive report that encompasses the following areas:

- The current status of the mobile and broadband infrastructure and services access gaps across the country. This report should include details on the fiber optic national and international backbone network, backhauling, last mile connectivity, copper or microwave links, base stations, satellite links, etc.
- The availability, cost, and dependability of services, including 2G, 3G, 4G, and 5G networks, in underserved and un-served rural and distant regions of the nation, as well as the network capabilities of operators.
- Information about network operators' current and future plans to invest in digital infrastructure in underserved and unserved regions of the country should be included. This should cover details such as the installation of new base stations, the expansion of the fiber backbone network, ownership, capacity, and coverage.
- The available power sources in locations for infrastructure and telecommunications sites include hybrid, solar, and electric energy. This report should outline current and projected energy needs for the future, as well as identify potential opportunities for cross-sector infrastructure collaboration.
- The information details rural and isolated areas in the country that lack adequate service. The report should prioritize areas for the mobile network deployment project and include information on coverage, available services, and current mobile network infrastructure. Additionally, it should include the names, geographic coordinates, area size, distance from Addis Ababa, population density in each location, and geographic digital mapping.
- The current service demand in the identified un-served and underserved areas of the country. Additionally, provide an assessment and forecast for the next ten years using parameters such as population density, age, gender, occupation, purchasing power, etc.
- The project locations that will facilitate the Environmental and Social Impact Assessments (ESIAs) for the EARDIP are included in the compilation of projects designed to address identified access gaps.

Task 2: Financial analysis of network expansion and upgrading costs

The firm should conduct a comprehensive financial study that includes the following:

- a) **CAPEX and operating costs OPEX Analysis:** The consulting firm is responsible for estimating the deployment investments (CAPEX) and operating costs (OPEX) associated with each part of the network, including base stations, last-mile fiber network facilities, satellite facilities, and each technological alternative. This also includes the cost of electricity and hybrid power sources required for the telecommunications infrastructure to operate, especially in areas where electricity is not the primary power source.
- b) **Individual Cost Analysis:** The consulting firm should offer a consolidated financial analysis that identifies the main individual costs of the elements involved (such as the cost of a node, cost per kilometer of fiber optic cable, passive infrastructure elements, etc.) in a manner that allows for switching between different technological options. This will facilitate specific financial sensitivity analysis for each option
- c) **Universal Access Fund (UAF) levy Collection Plan:** The consulting firm is expected to develop a plan for collecting the Universal Access Fund (UAF) levy from operators before the collection date of July 2025. The plan should include forecasting the amount to be collected in the first year and predicting its annual growth in subsequent years. The data needed for the financial analysis will primarily be gathered through consultations with telecommunications operators and ISPs, as well as by comparing with other countries.

Key Deliverables

The consulting firm is expected to produce a detailed and comprehensive report that encompasses the following areas:

- A report prepared on financial analysis on network expansion and upgrading costs. It includes information on base stations, last-mile connectivity, fiber costs per kilometer, and passive infrastructure elements etc.
- A report has been prepared on the amount of Universal Access funds that are projected to be collected from operators and service providers in the first year of fund collection. This report includes forecasts of the growth rate of these funds in the subsequent years, considering a 1.5 percent levy on their gross annual income.

Task 3: Recommendation of the Most Appropriate Programs or Model for Network Expansion/Upgrading

Based on the technical, financial, and market assessments, as well as previous experience and lessons learned from similar schemes in other countries or globally, the firm:

- a) **Optima Incentive Mechanisms:** The consulting firm should propose suitable programs or models that offer an optimal incentive mechanism for the private sector infrastructure and services rollout and upgrade. The identified programs or models should be consistent with the universal access and service framework and fund regulations.
- b) **Ownership and management structure of the broadband network infrastructure:** The firm will provide detailed information on the arrangement, including the ownership and management structure of the broadband network infrastructure, governance and oversight arrangements for contract administration, risk distribution between the parties involved, and responsibility sharing for infrastructure management. The structure created must provide open, flexible, transparent, and non-discriminatory access to all wholesale and retail service providers. Additionally, it should ensure that there are no conflicts of interest between the partner(s) and potential subcontracting parties.
- c) **Open Access to Infrastructure:** The firm will recommend the best financial scheme to attract private sector investment while upholding open-access principles and promoting infrastructure sharing. This might include, for instance, the matching investments scheme, or public private partnerships, proposed under EARDIP

Key Deliverables

The consulting firm is expected to produce a detailed and comprehensive report that encompasses the following areas:

- Report on suitable programs or models that offer an optimal incentive mechanism for the deployment and enhancement of private sector infrastructure and services.
- Report on the ownership and management structure of the broadband network infrastructure, including governance and oversight arrangements for contract administration, risk distribution between contracting parties, and shared responsibilities for infrastructure management.

Task 4: Procurement Assistance and Bidding Process Management for Network Expansion/Upgrading Procurement

As the digital infrastructure will be partly funded by public funds from the EARDIP program and the UAF, the operators responsible for deploying and managing the infrastructure must

operate the network on an open access basis. This must be done transparently, fairly, and without discrimination to encourage effective shared use of the infrastructure by other telecommunications service providers. Depending on the programs or models in place, the company may need to provide essential documents for future procurement.

Develop a detailed implementation plan for the un-served and underserved rural and remote areas, based on the project sites identified under task 1, outlining a phased approach for implementing the scheme. This plan should include expected outputs and outcomes at different stages of the implementation process.

- a) Suggest a plan for private sector engagement in the development of mobile network infrastructure and services in areas that are currently lacking them, along with policy recommendations.
- b) Identify and list the Universal Access Fund projects planned for deployment in underserved rural and remote areas. Estimate the cost of the projects and develop Terms of Reference (ToR) and Request for Proposals (RFPs), along with any other necessary tender documents, to select private sector actors through an international competitive tender process for implementing broadband connectivity solutions nationwide. These documents may be segmented by geographic project locations identified in task 1.
- c) Develop project implementation plan, monitoring and evaluation guidelines, and project outcomes evaluation guidelines. Additionally, the firm is responsible for developing and submitting the UAF Operational Plan.
- d) Drafting a contract agreement that outlines the rights and obligations of service providers, government entities, end users, and service level agreement (SLA) templates.
- e) Coordinate with the firm developing the commercial transaction manual for implementing the preferred model and monitoring service levels/performance of the selected bidder(s), including a proposal of enforcement mechanisms.

Key Deliverables

The consulting firm should develop a comprehensive report including the below bulleted points.

- Report on the private sector engagement in the development of the telecommunication infrastructure, specifically in rural areas lacking connectivity.
- Report on the project implementation plan and development of the procurement plan, bid documents (Terms of Reference and Request for Proposal), focusing on underserved rural and

remote areas, project awarding and contracting documents, and project monitoring and evaluation plan.

- List of the Universal Access Fund-supported projects ready for deployment in the identified unserved and underserved rural and remote areas in the country and begin the bidding process and select communications service providers or operators through auctions.
- Drafted contract agreement that outlines the rights and obligations of service providers, government entities, end users, and service level agreement (SLA) templates.

Task 5: Additional services to achieve universal access through community-based approaches (public access)

- a) The firm will explore public access point models where public financing could further help achieve the objectives of universal access. The firm will also provide a comparative analysis of public access point models (also known as community networks) implemented in other countries, including free Wi-Fi hotspots, kiosk models, or smart villages.
- b) The firm is expected to issue recommendations regarding high-impact project locations for public access points and public energy charge points, as well as specific business models that would maximize sustainability. This includes the development of a business model to ensure that facilities and equipment can be maintained and operational costs can be covered. For example, by partnering with private sector actors, providing a co-working space for rent to entrepreneurs, and/or charging for specialized technical training courses. The firm will also propose community network models and best practices that can be used and implemented to address the connectivity issues in areas that lack coverage or are under-covered.
- c) The firm should conduct an assessment to determine the connectivity levels of schools in the country and propose various school programs and projects to address access gaps identified across different levels of education, from elementary to senior secondary schools.

Key Deliverables

The consulting firm is expected to produce a detailed and comprehensive report that encompasses the following areas:

- Report on the various models, including community-based ones, where public financing could further help achieve the objectives of universal access.
- Report on the connectivity level of schools (elementary to senior secondary schools) in the country and the proposed programs to fill the access gaps identified in schools.

Task 6: Capacity Building

- a) The firm will conduct on-the-job local training for ten staff members of the ECA over duration

of ten days. Furthermore, recognizing that the Universal Access and Service Directorate is newly established and lacks experience in the design and implementation of Universal Access Fund projects, as well as in fund administration and disbursement, the firm will also facilitate international training sessions, study tours, and experience-sharing opportunities for at least six ECA staff members for a period of ten days in a selected country. This initiative aims to provide valuable experiences and bench-marking opportunities, particularly concerning the economic and technical analysis components of the UAF Program. The curriculum will encompass topics such as strategic planning for universal access and service, economic and financial modeling, project monitoring, GIS applications for telecommunication data analysis and network planning optimization, infrastructure mapping, and geo-database management, among others. The consultant is accountable for covering all associated expenses, which include air travel, comprehensive accommodations, per diem allowances, and any miscellaneous costs. However, the consulting firm should incorporate all travel-related expenses into the project budget when presenting their proposal for project costs. In order to achieve the capacity-building objective, the consultant must outline specific training goals, determine how many staff members will participate in local training, set the length of the training, and create a training program in Ethiopia for up to 20 ECA staff members over a period of ten days, split into two phases. The costs of local training, including renting the training facility and providing refreshments and lunch, will be covered by ECA.

Key Deliverables

- The consultant will provide a clear schedule and structured training materials for a local training program in Ethiopia for up to 20 ECA staff over ten days. Additionally, they will plan international training, experience-sharing, and benchmarking visits for six ECA staff for 10 days in at least one country.

Task 7: Stakeholder Engagement (Cross-Cutting)

- a) The firm will facilitate the preparation and holding of stakeholder consultations throughout the various stages, involving both public and private relevant entities. This includes presenting the recommendations of the report and options for expanding or upgrading the networks to government decision-makers.

Key Deliverables

- Stakeholder engagement program: Agenda and timetable for discussing the project deliverables and other related issues.

Task 8: Action Plan and Day-to-Day Support Activities for the UAF Program

The consultant will develop a work plan with milestones and delivery dates in consultation with ECA management immediately after the initial presentation of the approaches to the tasks listed above and the discussion of ways forward for each stream of activity. The following are the expected activities of the advisor:

- The winning firm will organize discussions with ECA, the project implementation unit, and government officials, particularly in the regions, communities, and with operators. The firm will also study and review the projects' initiative documents and gather information to obtain a general overview of the existing situations related to this assignment. It will also organize field visits to the areas where the projects will be implemented.
- Support the UAS Directorate in addressing regional network performance complaints by investigating as necessary and conducting follow-up discussions with regional representatives and industry stakeholders. Determine the UAF response and prepare remediation actions to close service gaps.
- Review and Undertake a new Access Gap Study based on new GIS coverage prediction mapping from all active service providers (existing and new entrants), including topographic features, to revise and update the previous gap analysis.
- The consultant shall prepare a new Gap Closure Development Plan, including Financial Analysis (revision to the UAF Strategic Plan), based on the updated mapping study;
- Update and finalize project preparation details and tender documents for the coverage gap projects, in agreement with ECA on the financing method, such as Pay-or-Play competitions or seeking external donor partnerships.
- Formulate other projects and implement them as outlined in the UAF Strategic Plan;
- Provide transaction support to ECA (i.e., assist with tender evaluation and contracting) for engaging operators on UAF Gap and Borderlands projects;
- Assist ECA in developing the procedure for service provider revenue reporting, levy calculation methodology, and means of ensuring the amount and timing of UAF's collections, based on regulations and international best practices.
- Provide Just-in-time technical advice and assistance on UAF staff hiring, initial staff orientation, and training;
- Provision of additional market assessments and regulatory advice in the form of briefing notes and discussion papers, upon request.

6. Required Qualifications and Experience of the Consulting Firm and its Project Team

In order to effectively conduct a nationwide network coverage gap assessment in telecommunications, the consulting firm and its project team must have a comprehensive set of qualifications and experience. This includes expertise in universal access and service (UAS) principles, technical knowledge of telecommunications infrastructure, mobile network coverage gap assessment and data analysis skills, and project management capabilities. Additionally, they should be capable of formulating and implementing projects to address the gaps that can be funded through the Universal Access Fund (UAF) and must have ample experience in effectively operationalizing the fund, etc.

Below is a detailed breakdown of the necessary qualifications and experience:

6.1. General qualification and Experience of the Consulting firm

The consulting firm competing for this assignment must have general experience in the consultancy industry and should be able to demonstrate a variety of experiences. This includes client satisfaction, market presence, managerial skill to manage complex projects and project teams, risk management, engaging stakeholders, notable achievements such as awards, successful projects showing competence and reliability, research and development initiatives, innovative practices, and references confirming the firm's consistent and reliable financial performance over time.

6.2. Specific Experience

A consulting firm that wants to submit a proposal for the project must demonstrate a comprehensive blend of technical expertise in telecommunications infrastructure design, development, and deployment, as well as a solid understanding of Universal Access and Service principles and practices in telecommunications. This includes evaluating coverage deficiencies, creating subsidized projects through UAF for rural and remote areas without coverage, preparing bid documents, awarding and managing projects, among other tasks. Furthermore, the consulting firm should have experience with telecommunications regulatory frameworks, Universal Access Fund collection, management, administration, operationalizations, disbursement, etc.

Furthermore, the firm should possess proficiency in employing Geographic Information Systems (GIS) tools for the analysis and mapping of mobile network coverage, as well as capabilities in data analysis. Additionally, it is imperative that the firm exhibits strong managerial competencies, including leadership

skills and stakeholder engagement. A solid background/core business in the telecommunications sector, whether as a consultant or an infrastructure developer, is essential, along with relevant industry experience and appropriate educational qualifications. The firm must also display methodological rigor in project design, competence in preparing bid documentation, strong negotiation abilities, and exceptional communication skills to effectively collaborate with stakeholders involved in initiatives for universal access. Experience in operationalizing the Universal Access Fund and developing subsidized projects aimed at bridging connectivity gaps in rural and remote areas is equally critical.

To be eligible to submit a bid for this assignment, the consulting firm must be officially registered as an entity specializing in the telecommunications sector. The firm's primary expertise should encompass consulting within the telecommunications industry or the design, development, and implementation of telecommunications infrastructure for a minimum of fifteen (15) years.

Furthermore, the consulting firm is required to demonstrate successful execution and completion of at least two (2) telecommunications infrastructure rollout and/or Universal Access and Service consultancy projects or similar assignments that are comparable in nature, complexity, and operating environment within the past five years. Comprehensive details regarding these similar assignments including the name and address of the client, scope, value, and time frame should be provided and submitted. Additionally, the consulting firm must exhibit both technical and managerial capabilities, demonstrating the necessary technical expertise and managerial skills to undertake the assignment within the submitted firm profile(s), along with further details regarding team qualifications as specified below.

The consulting firm must exhibit specific expertise and competence in the following domains:

a) Technical Requirements In order to conduct a nationwide network coverage gap assessment and develop projects to be subsidized by the Universal Access Fund (UAF), the consulting firm and its project team should possess competencies with extensive knowledge in telecommunications engineering. This includes:

- **Infrastructure Development:** The firm should have skills in evaluating existing infrastructure such as fiber optics, satellite communications, and microwave links. They should have extensive experience in assessing infrastructure projects specifically related to telecommunications, particularly fiber optics.
- The consulting firm should have experience in telecommunications infrastructure rollout, especially in underserved rural or remote areas, is preferred.

- The consulting firm should be familiar with telecommunications regulation, broadband strategy, and ICT policy.
- **Telecommunications Engineering Expertise:** The firm should have practical and demonstrable experience working within the telecommunications sector encompassing infrastructure, technological applications, and operational practices. This includes knowledge and familiarity with various telecommunications technologies including mobile networks (2G, 3G, 4G, and 5G), fixed-line technologies, satellite communications and broadband technologies. This includes understanding radio frequency propagation models and network design principles.
- Familiarity with energy efficiency principles and best practices tailored to the telecommunications sector.
- **Technology Trends:** Awareness of emerging technologies like 5G, IoT (Internet of Things), and their implications for connectivity.
- **Geographic Information Systems (GIS):** Proficiency in using GIS tools to analyze coverage maps and identify gaps.
- **Data Analysis Skills:** Familiarity with statistical analysis software to interpret data related to user demographics and service usage patterns is essential.
- **Project Management Tools:** Experience with project management software (e.g., Microsoft Project, Asana) to plan, execute, monitor, and close projects effectively.
- **Regulatory Knowledge:** Understanding of telecommunications regulations and policies at both national and international levels that govern universal access initiatives.

b) Managerial Requirements The managerial aspect involves overseeing project execution and ensuring alignment with strategic goals:

- **Leadership Skills:** Ability to lead multidisciplinary teams comprising engineers, analysts, financial experts, and community stakeholders.
- **Financial Management:** Competence in budgeting for projects funded by the UAF. This includes cost estimation techniques and financial reporting skills to manage funds responsibly.

- **Risk Management:** Ability to identify potential risks associated with project implementation (e.g., regulatory changes or technological obsolescence) and develop mitigation strategies.

c) Stakeholder Engagement Experience

- The consulting firm should showcase its experience in engaging with various stakeholders, including government agencies, telecommunications operators and service providers, industry partners, and community groups.
- The firm should have experience in facilitating workshops or discussions aimed at gathering input on mobile network coverage gap in the rural and remote areas of the country.

d) Core Business Requirements to complete this assignment, the consulting firm should have its core business in the telecommunications industry, with a clear business model focused on providing services related to universal access.

- **Core business:** The consulting firm conducting this assignment should be in the telecommunications sector.
- **Consulting Services Portfolio:** Offering services such as feasibility studies for network expansion projects, gap analysis reports, project design documentation for UAF applications, bid document preparation assistance, contract administration support, etc.
- **Market Understanding:** In-depth knowledge of the telecommunications market dynamics within the country or region being assessed. This includes familiarity with existing service providers' capabilities and market penetration levels.
- The consulting firm should have experience in analyzing telecom markets and telecom indicators.
- **Sustainability Practices:** Incorporating sustainable practices into project designs that consider environmental impacts while promoting social equity in access to telecommunications services.

e) Year in Business Experience matters significantly in this field:

- **Industry Experience:** A minimum of 15 years of experience in telecommunications consulting or related fields is typically required. This experience should include previous work on similar projects involving UAF or universal access and service project formulation and implementation in rural and remote areas.
- **Track Record of Successful Projects:** Demonstrated success in completing similar assessments or projects that resulted in improved network coverage or increased access to telecommunications services.

f) Universal Access Fund Project Design & Development:

- The consulting firm should also have experience in the conduct of universal access fund collection, administration, disbursement, benchmark studies on telecom service and device affordability.
- The consulting firm should have a deep understanding of UAS principles, which aim to ensure that all individuals have access to essential telecommunications services. This includes familiarity with regulatory frameworks, policies, and best practices that govern universal service obligations.
- **Needs Assessment Methodology:** Developing comprehensive needs assessment frameworks that involve community consultations to understand local challenges regarding access to telecommunication services.
- **Project Formulation Techniques:** Utilizing logical frameworks (Log Frames) or results-based management approaches to structure project objectives clearly aligned with UAF goals.
- **Monitoring & Evaluation Frameworks:** Establishing metrics for assessing project outcomes post-deployment ensures accountability and continuous improvement processes are embedded within the project lifecycle.
- **Fund Management:** Understanding financial mechanisms for managing UAF resources effectively.
- **Grant Administration:** Developing criteria for funding projects that improve access to telecommunications services.
- **Monitoring & Evaluation:** Establishing metrics for assessing the impact of funded projects on service accessibility.

g) Project Awarding & Contracting: The process of awarding contracts involves several key steps:

- **Bid Document Preparation Skills:** Expertise in drafting clear bid documents that outline project specifications while adhering to legal requirements set forth by funding bodies like the UAF.
- **Evaluation Criteria Development:** Creating transparent evaluation criteria for assessing bids from contractors based on technical capability, financial stability, past performance records, etc.
- **Contract Negotiation Skills:** Proficiency in negotiating terms with selected contractors ensuring compliance with UAF guidelines while protecting the interests of all stakeholders involved.

h) Skill & Experience, specific skills are critical for successful project execution or implementation UAF initiatives effectively:

- **Communication Skills:** Strong verbal and written communication abilities are essential for articulating complex technical concepts clearly to non-expert stakeholders including policymakers and community members.
- **Team Collaboration Skills:** The ability to work collaboratively across different departments within the firm as well as externally with partners is crucial for successful project delivery.

i) Capacity development training and knowledge sharing: The consulting firm should have experience in providing capacity development training and knowledge sharing. Training programs are essential in equipping staff with the necessary technical skills and knowledge needed for telecommunications technologies, regulatory frameworks, and market dynamics. These programs should be customized to meet the specific needs of stakeholders involved in UAS initiatives.

j) Proven Track Record of Similar Projects

- A portfolio demonstrating the successful execution of similar or comparable projects, inclusive of case studies from prior assessments within the telecommunications sector or associated industries, is required.
- The consulting firm is expected to furnish a comprehensive array of testimonials or client references, along with their corresponding contact information.
- Having working experience in both developed and developing countries is desirable.

k) Commitment to Sustainability Practices and Reporting

- The consulting firm should demonstrate a commitment to sustainability through its own practices. This includes having an internal sustainability policy that outlines efforts to minimize its own carbon footprint.
- The consulting firm shall report to the Project Manager and is required to provide weekly and monthly reports detailing progress made and any difficulties encountered before submitting the final report.
- Reporting will be done electronically (via emails, MS Teams meetings, etc.) or in physical meetings as determined by the Project Manager.
- During and after the agreement execution period, all data collected, field tools, and other study deliverables will remain the property of the Authority and may not be reproduced without express consent from the Commission. The Collaborative Research Partner will report to the Project Manager.

The Firm selected will be hired by the Project Implementation Unit (PIU) within the Ministry of Innovation and Technology (MinT).

6.3. Key Project Staff Qualifications and experiences

The consulting firm's project team should have the necessary qualifications and relevant experience in telecommunications engineering, communications engineering, electrical engineering, GIS, financial and procurement specialist or a related field. Professional certifications such as Project Management Professional (PMP), Certified Telecommunications Network Specialist (CTNS), or relevant IT certifications can be beneficial for team members involved in project management or technical assessments.

The key project staff/professionals required for this assignment are listed in the table below. In all cases, credentials, client reference letters, or certificates must be provided to support the cited experience.

Table- 1 key experts

No	Key Staffs	Qualifications	Experience	Certification
1	Project Manger and Team Leader	A minimum of a Master's degree in telecommunications/electrical	<ul style="list-style-type: none"> • Minimum of 10 years of experience in managing projects and project teams. • The team leader shall have 	<ul style="list-style-type: none"> • Project management certification (PMP, Prince2) or any other related industrial

		engineering/Communications Engineering/Project Management or related field	<p>experience in advising policy makers/regulators in the ICT sector.</p> <ul style="list-style-type: none"> • Proven track record in conducting feasibility studies in related fields, and should include at least two references or testimonials. • Oral and written proficiency in English. 	certification has an added value.
2	Senior Mobile Network Planning and Optimization Engineer/Senior Telecommunications Expert	A minimum of Master's Degree in telecommunications/communications Engineering/Electrical engineering	<ul style="list-style-type: none"> • Minimum of 10 years of specific professional experience in mobile network planning, designing, and optimization, telecommunication network infrastructure rollout projects, analysis, telecom market tariff determination, telecommunication subscriber traffic prediction and estimation, infrastructure cost analysis and estimation • Candidate must demonstrate specific experience in at least 2 similar projects and attach credentials and client references. • Oral and written proficiency in English. 	Any related industrial certification holds added value..
3	Senior GIS Expert for mobile network/telecommunications gap analysis.	<ul style="list-style-type: none"> • A minimum of a Bachelor's Degree in GIS or Remote Sensing or Telecommunications/Communications engineering/Electrical Engineering/ICT or 	<ul style="list-style-type: none"> • The candidate must possess at least 8 years of professional experience with demonstrated knowledge and experience in GIS tools such as ArcGIS, QGIS etc usage for telecommunication network planning and optimization, mobile network infrastructure, service gap 	Any related industrial certification holds added value.

		related fields	<p>analysis, broadband infrastructure, and services mapping.</p> <ul style="list-style-type: none"> • Applicants should have proficiency in using GIS tools for analyzing geographic and population data. Practical experience in developing geo-databases or geo-portal systems. • Candidates must have specific experience in at least two similar projects and be able to provide credentials and client references. • Experience in developing countries, especially in Sub-Saharan Africa, is considered an additional advantage. • Oral and written proficiency in English. 	
4	Senior Procurement Expert	Masters in Procurement, Economics, Business Administration, Law, Commerce or related disciplines.	<ul style="list-style-type: none"> • 10 years of relevant experience in designing procurement and bidding documents, with demonstrated experience supporting telecom procurement design, • Evidence of at least 2 similar projects shall be attached. • Candidates should possess experience in similar assignments in at least one country other than their country of nationality. • Should have familiarity and experience with the WB or 	

			<p>other development partners' Procurement Procedure.</p> <ul style="list-style-type: none"> • The expert should have experience in similar assignments in at least one country other than their country of nationality. • Experience in developing countries, particularly in Sub-Saharan Africa, is an additional advantage. • Proficiency in oral and written English is required. 	
5	Financial Specialist	Minimum Bachelors Degree in Economics, Statistics or related fields.	<ul style="list-style-type: none"> • Minimum of 8 years of professional experience in statistical data analysis for the telecommunications industry. • Experience in creating and reviewing financial models for investment decisions, as well as previous involvement in detailed feasibility studies and transaction advisory services, is desirable. • Candidates should have demonstrated experience in at least 2 similar projects, and should attach credentials and client references. • Experience in developing countries, particularly in Sub-Saharan Africa, is an additional advantage. • Proficiency in oral and written 	Any related industrial certification holds added value.

			English.	
6	Legal Expert in Telecommunications	Minimum Bachelors Degree in Law	<ul style="list-style-type: none"> • A minimum of 8 years of professional experience in analyzing telecom policy and law, telecom project contracting awarding, competition policy, and price regulation • Experience in projects subsidized by the Universal Access and Service Fund is preferred. • The candidate must be able to demonstrate specific experience in at least 2 similar projects and provide credentials as well as client references. • Experience in developing countries, particularly in Sub-Saharan Africa, is an added advantage. • Oral and written proficiency in English 	Any related industrial certification holds added value.

Note: The consulting firm may propose additional experts for the project with strong and appropriate justifications.

7. DUTY STATION

The consulting firm will perform this assignment while residing in the office of ECA and from their home office; however, it will include travel to the regions designated in the EDFP project (including the un-served and under-served areas) and meetings with the operators and other federal institutions in Addis Ababa to collect data and make decisions on this assignment. The firm shall confer with the Client and with relevant authorities during the planning stage for site visits to understand any requirements for security and to ensure that appropriate arrangements are made for security during site visits.

8. Level of effort needed by key project staff to successfully complete project tasks or activities.

In any project management setting, estimating the Level of Effort (LOE) is a crucial step. There are various techniques available for accurately estimating LOE, including using historical data, expert judgment, parametric estimating, and analogous estimating. Historical data involves using past performance to predict future LOE, expert judgment relies on industry professionals' knowledge and experience, parametric estimating uses statistical methods, and analogous estimating uses information from similar past projects. Choosing the right method requires a thorough understanding of the specific project and its resources.

The dedication demonstrated by essential project professionals in efficiently completing tasks is crucial for successfully finishing each project. The table below displays the minimum level of effort required from key project personnel to ensure the success of this project determined using man-month methodologies.

Table- 2 The minimum estimated amount of effort required from key project professionals.

No.	Key Staff position	Estimated Staff Months
1	Project Manger and Team Leader	12
2	Senior Mobile Network Planning and Optimization Engineer/Senior Telecommunications Expert	10
3	Senior GIS Expert for mobile network/telecommunications gap analysis.	10
4	Senior Procurement Expert	5
5	Financial Specialist	5
6	Legal Expert in Telecommunications	3

9. REPORTING

The consultant will report to ECA, Universal Access and Service Directorate

At least every month, provide updates on the progress and status of the project. The project team of the client (ECA) may arrange a brief discussion on the status of the project at any time during the lifetime of the project.

10. ACCOUTABILITY

The consultant is accountable to Ethiopian Communications Authority /ECA and PIU

11. DELIVERABLES

The following deliverables and timeline associated with the tasks are expected from the firm as part of this assignment:

Table -1 Summarized Deliverables

No.	Deliverable	Timeline	Payment Methods	Remarks
1	Kick off meeting	2 weeks after the project is awarded and signed.	---	
2	Inception Report Detailed work plan	1 month after project signed	10%	
	<ul style="list-style-type: none"> • A thorough and detailed report on the current status of mobile and broadband infrastructure, as well as an assessment of access gaps nationwide, is required. This report should encompass the national and international fiber optic backbone network infrastructure, back-hauling processes, last mile connectivity options (including copper or microwave links), base stations, and satellite links. • In addition, the report should include information on the network capabilities of operators, as well as the availability, affordability, and reliability of services such as 2G, 3G, 4G, and 5G networks, fiber optic cable, and satellite services in the un-served and underserved rural and remote areas in the country. • The report should also include information about current and planned investments in digital infrastructure by network operators in the un-served and under-served parts of the country. This information should cover details such as the expansion of the fiber backbone network and installation of new base stations, including aspects like coverage, capacity, and ownership. • Report on the current available power sources in the areas for the telecommunication sites/infrastructure, including electric, solar panels, 	5 months after project signed	30%	

	<p>and hybrid energy. This report should also identify potential points for cross-sector infrastructure sharing and include both current and future anticipated energy requirements.</p> <ul style="list-style-type: none"> • In addition, this report should identify un-served and underserved rural and remote areas nationwide. It should prioritize regions for the mobile network deployment initiative and include details such as the names of the areas, their geographic coordinates, area size, distance from Addis Ababa, and population statistics for each location. Furthermore, the report should incorporate geographical mapping and provide information on the existing mobile network infrastructure, available services, and coverage in these areas. • Report on the current service demand in the identified un-served and underserved areas of the country. Additionally, provide an assessment and forecast for the next ten years using parameters such as population density, age, gender, occupation, purchasing power, etc. • The report should also include information on the project locations that will facilitate the Environmental and Social Impact Assessments (ESIAs) for the EARDIP. These locations are included in the compilation of projects designed to address identified access gaps. 			
4	<ul style="list-style-type: none"> • Universal Access and Service Project Design, project bid documents (ToR and RFP) for the identified un-served and under-served rural and remote areas, report on the project awarding and contracting agreement, the report should also project management, monitoring and evaluation and risk mitigation plan 	7 months after project signed	25	
5	<ul style="list-style-type: none"> • A report prepared on financial analysis on network expansion and upgrading costs. It includes information on base stations, last-mile connectivity, fiber costs per kilometer, and passive infrastructure elements etc. • A report has been prepared on the amount of Universal Access funds that are projected to be collected from operators and service providers in the first year of fund collection. This report includes forecasts of the growth rate of these funds in the subsequent years, considering a 1.5 percent levy on their gross annual income. 	8 months after project signed	15%	
6	<ul style="list-style-type: none"> • Report on suitable programs or models, which provide an optimal 	8 months after		

	<p>incentive mechanism for private sector infrastructure and services rollout and upgrade.</p> <ul style="list-style-type: none"> • Report on the ownership and management structure of the broadband network infrastructure created, governance and oversight arrangements for administration of the contract(s), distributions of risks between the contracting parties and responsibility sharing between them towards management of the infrastructure. 	project signed		
7	<ul style="list-style-type: none"> • Report on the procurement plan, bid documents (Terms of Reference and Request for Proposal), focusing on underserved rural and remote areas, project awarding and contracting documents, and project monitoring and evaluation plan. • List of the Universal Access Fund-supported projects ready for deployment in the identified un-served and underserved rural and remote areas in the country. Begin the bidding process and select communications service providers or operators through auctions. • Draft a contract agreement that outlines the rights and obligations of service providers, government entities, end users, and service level agreement (SLA) templates. 	8 months after project signed		
8	Report on the different models including community network where public financing could further help achieve objectives of universal access.	8 months after project signed		
9	The consultant shall provide a clear schedule and structured training contents, for a local training program in Ethiopia, for up to 20 ECA staff over ten days, as well as international trainings and experience sharing and benchmarking visits program for 5 ECA staff for 10 days in at least one country.	4 months after project signed		
10	Stakeholder engagement to discuss on the project deliverables and other related issues	At least every four months		
11	Monthly Progress Project Reports	Monthly after the project signed		
12	Final Report (conclusions and recommendations on each deliverables and on the UAS projects to implemented	12 months after project signed	10%	

12. DURATION

The assignment will be executed under a Lump-sum contract for duration of 12 months, covering staff time and travel, from the effective date of the project contract.

13. Evaluation Criteria

Main Criteria for evaluation of proposals will be as follows:

Table - 2 Evaluation Criteria's

No.	Evaluation Criteria's	Weight (100%)
I	Specific Experience of the consultant (as a firm) relevant to the assignment	15
	<ul style="list-style-type: none"> The consulting firm competing for the project should have at least fifteen years of experience in the telecommunications industry, with a primary focus on consulting in the telecommunications sector, telecommunications infrastructure design(2G, 3G, 4G, and 5G), development, and implementation. Telecommunications regulatory framework and policy development, Universal access and service access and service gaps assessment in the rural and remote areas, operationalization of the universal access funds, and project formulation and execution, bid document preparation(TOR and RFP, Universal Access Project Awarding and Contracting, etc (7.5) 	
	<ul style="list-style-type: none"> For past projects, the consulting firm should provide at least two client testimonials or references that demonstrate their successful completion of similar assignments. These assignments include designing and implementing telecommunications infrastructure, assessing universal access and service gaps in rural and remote areas, and executing projects subsidized by universal access funds(7.5). 	
II	Adequacy and quality of the proposed methodology, and work plan in responding to the Terms of Reference(25)	25
	a. Technical approach and Methodology	15
	b. Work Plan	5
	c. Organization and Staffing	5

III	Consultant Personnel (Qualification and Work Experience)	45
	a. Project Manger and Team Leader	10
	b. Senior Mobile Network Planning and Optimization Engineer/Senior Telecommunications Expert	8
	c. Senior GIS Expert for mobile network/telecommunications gap analysis	8
	d. Senior Procurement Expert	8
	e. Financial Specialist	8
	f. Legal Expert in Telecommunications	8
IV	Transfer of knowledge (training) program (relevance of approach and methodology)	12
	<ul style="list-style-type: none"> The consulting firm proposed conducting a brief needs assessment, defining training objectives, identifying training content, and developing modules to meet the objectives. They also proposed using recognized training methodology and principles, such as instructional design (Analysis, Design, Development, Implementation, and Evaluation). They planned to utilize suitable delivery methods, create an implementation plan outlining timelines, required resources (such as trainers or technology), and logistical arrangements for delivering training sessions. Additionally, they would collaborate with subject matter experts in telecommunications and UAS policy to ensure the content remains up-to-date with industry standards and practices. 	6
	<ul style="list-style-type: none"> The proposed study tour or learning visit should establish specific objectives, scope, and activities that align with the roles and interests of the project staff at the Ethiopian Communications Authority. Criteria for selecting countries to visit should be well-discussed, as well as how the session will contribute to prioritizing the promotion of best practices and the formulation of strategies that can be effectively implemented at various levels of governance and community engagement. Key themes to be addressed in the learning visit should be identified and included, such as Universal Access and Service Development, Administration and Utilization of the Universal Access Fund, Rural and Remote Connectivity, and Community 	6

	Engagement Practices. The sessions should also aim to promote collaborative solutions that support sustainable development outcomes, particularly in the trend and development of universal access and service.	
V	Participation by nationals among proposed Key Experts(3)	3
Total Mark(sum of I, II, III, IV and V)(Technical)		100

The minimum technical score (St) required to pass is: 70% /Seventy/