



COUNTRY: KENYA

PROJECT: KENYA DIGITAL ECONOMY ACCELERATION PROJECT (KDEAP)

IMPLEMENTING AGENCY: Information and Communications Technology Authority (ICTA)

PROJECT ID: P170941; Credit Numbers 7289-KE and 7290-KE

TERMS OF REFERENCE FOR:

Extending Kenya's Backbone Network – Designation of Missing Links, and Supervision of Deployment (Consulting Firm)

Contract No: KE-ICTA-395930-CS-QCBS

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Extending Kenya’s Backbone Network – Designation of Missing Links, and Supervision of Deployment (Consultancy Firm)

1. Background

The Government of the Republic of Kenya (GoK) has received financing in the amount equivalent to US\$390 Million from the World Bank towards the cost of the first phase of the Kenya Digital Economy Acceleration Project¹ and it intends to apply part of the proceeds to payments for goods, works, non-consulting services and consulting services to be procured under this project.

The project will include the following components.

1.1 Component 1: Digital Infrastructure and Services-The aim of this component is to increase access to high-speed internet for individuals, industry, and government—the ‘foundation of the foundations’ of a digital economy and strengthen Kenya’s role as regional digital leader—while leveraging investments from the private sector

1.2 Component 2. Digital Government and Services- This component will invest in the foundational digital services, platforms, architectures, and policies needed to transform the way the Government communicates and conducts its internal operations.

1.3 Component 3. Digital Skills and Markets- This component aims to equip young Kenyans with digital skills and strengthen their abilities to access and compete in domestic and regional markets through supporting skills development, to study mechanisms to improve access to affordable devices and through enhancing the enabling environment for e-commerce to support Kenya’s role as a regional digital hub.

1.4 Component 4. Project Management- This component will support project implementation, coordination, for the Project Implementation Unit (PIU) within ICTA and capacity building.

1.5 Component 5: Contingent Emergency Response Components-This component will be activated in the event of an emergency.

The GoK intends to apply a portion of the proceeds of the Credit to cover activities under sub-components 1.1 (middle-mile connectivity); 1.2 (last mile connectivity for education sector) and 1.3 (last-mile connectivity for government institutions). The project aims to accelerate digital transformation at the regional level focusing on critical digital enablers that ‘future-proof’ economic growth and leveraging Kenya’s leadership role in the region to facilitate the adoption and implementation of regionally harmonized frameworks for digital integration.

2. Objectives of the Assignment

The terms of reference are for a consulting firm to designate missing links in Kenya’s backbone network and to supervise the subsequent deployment of network capacity to fill these gaps.

3. Scope of the consulting services and specific tasks

The scope of service will involve the identification of routes suitable for incentivizing matching commercial investments in Kenya’s national backbone and links with neighboring countries.

The specific tasks will include the following:

a) Supply-side survey to assess the existing Network Infrastructure

Conduct a comprehensive assessment of Kenya’s current existing backbone infrastructure status, both public and privately-owned, by thoroughly reviewing and analyzing the existing

¹ The Program Information Document for KDEAP, and other documentation, is available at: <https://projects.worldbank.org/en/projects-operations/project-detail/P170941>.

network setup (both passive layer and active layer), security and operations. This will also involve collecting data on network uptime and reliability.

i. Survey the passive network infrastructure

This will involve surveying the passive network infrastructure, which includes the physical components and ductwork necessary to support the network. This will involve documenting, for instance, rights of ways alongside roads, electricity transmission networks, oil pipelines, railways etc.

ii. Survey the active network infrastructure

Survey the active network layer (e.g., fiber optic cabling, microwave links, satellite backhaul etc) by specifying the network segmentation, protocols, and technologies in order to what extent the current coverage provides an optimal network topology and a logical architecture.

b) Demand-side survey to assess future bandwidth needs

This will involve documenting the current and future bandwidth requirements of government departments, agencies, and other services that rely on the network (e.g., education, healthcare, critical infrastructure etc). The consultant should consider future growth projections and emerging technology trends that may impact the network infrastructure by assessing the potential adoption emerging technologies. This may include, for instance, the possible use of 5G cellular technology and low-earth orbit satellite services for use in backhaul.

c) Mapping of existing network and designation of routes for rehabilitation and extension (missing links)

This will involve further developing a detailed digital map of Kenya's current and future digital backbone network². The consultant should use the Open Fiber Data Standard for developing the map, based on earlier work by the Communications Authority (CA), the International Telecommunication Union (ITU), the World Bank and Mozilla Foundation.³ The demand survey will also require identifying, quantifying, and updating and adding to the digital map all major government sites, and public institutions and offices, such as schools, universities, TVETs, and health care centers, as well as public markets, export processing zones, rest stops, community centers and service centers across the country. These should be mapped in terms of their nearest available node on the existing and future backbone infrastructure.⁴

The designation of routes for rehabilitation and extension is expected to be around 40,000 km in total and should be organized into several lots. Lot 1 would comprise an initial procurement selection and Lots 2, 3 and 4 would be advertised later:

- i) Pilot routes to be included in the first phase of network deployment (this is expected to be around 5,000 km and should be designated at an early stage in project implementation);
- ii) Rehabilitation and repair of existing routes with poor uptime;
- iii) Resilient routes, that will provide back up to the more important legs of the network, for instance by serving the same end destinations but following a

² A digital map of fiber was developed by a consultant firm under a feasibility study carried out for KDEAP which can be used as a baseline, but will need updating and extending to cover missing links. This will be made available to the consultant.

³ A separate organization is being hired to further develop the Open Fiber Data Standard, but the outputs from this study will provide inputs to the Digital Map of Kenya's backbone infrastructure.

⁴ Again, here the existing digital fiber map can be used. It covers around 80 percent of existing educational and health institutions but needs improved coverage of other government institutions.

- different route or using an alternative passive network layer, or a non-fiber technology (e.g., satellite backhaul);
- iv) Backbone extension routes, to provide for the intended enlargement of Kenya's backbone network to cover all 47 counties and all major population centers and government locations.

d) Organisation of stakeholder consultations

Working closely the ICTA PIU and the World Bank, the consultant will organize one or more workshops with stakeholders to seek inputs on the digital map and the designation of routes that will benefit from project investments. The consultant should engage with key network operators (see figure 1 below) to identify specific needs, pain points, and expectations from the future network infrastructure. Network Operators are encouraged to propose routes to be served where they would be willing to co-invest. Based on inputs from stakeholders, the designation of routes may be revised.

e) Drafting of bidding documents

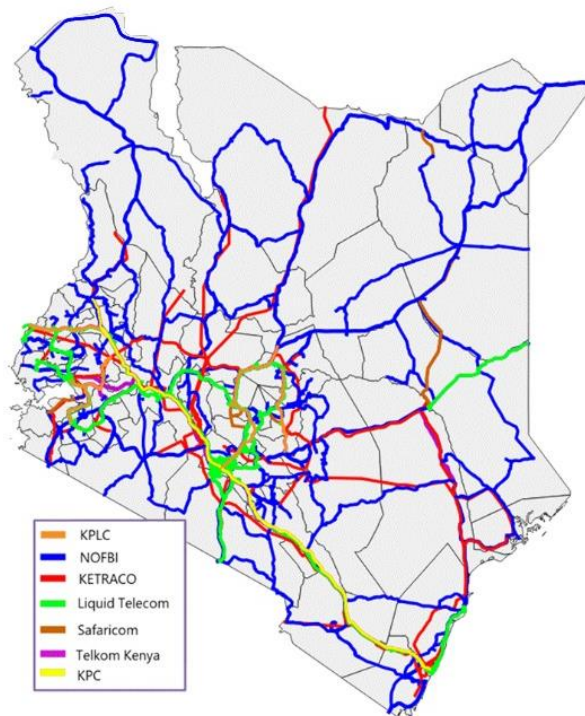
Working closely with the KDEAP project implementation unit (PIU) within ICTA, and with the consultant developing the commercial transaction manual (CTM), the consultant will assist in developing bidding documents for the future network build-out, using the network segmentation set out above. The bidding documents should be fully aligned with current World Bank Procurement Regulations

Priority should be given to the pilot routes which will be the first to be advertised. The bidding documents should assume competitive tendering in which investments from KDEAP funds are offered to bidders alongside their own commitments to make matching investments on the basis that the winning bidders would own and operate the resulting network capacity. Based on the demand assessment, the consultant should assign an initial set of maximum allowable subsidies (MAS) to each route, based on a per kilometer calculation. For instance, routes requiring only repair may attract a low MAS (say US\$5,000 per km) whereas new build routes in rural area may have a higher initial MAS (say US\$20,000 per km). For routes on which a multi-round reverse auction (MRRA) methodology is used for competitive selection, the MAS may be revised between each round of bidding.

f) Supervision of subsequent implementation works

Depending on the performance of the consultant firm in this first phase of the project, the consultant may be requested also to carry out supervision of the subsequent network implementation covering the pilot routes and later the award of contracts for repair and rehabilitation, resilience and network extension. As part of the supervision work, the consultant will need to agree with ICTA on a set of key performance indicators, which might include, for instance, bandwidth utilization, latency, packet loss, and network response times, quality of service and reliability.

Figure 1. Kenya's National Fiber Routes



Source: Saliency for World Bank. 2022. *Kenya Public Digital Infrastructure Options Study*.

4. Duration and location of the assignment

The consultant will undertake the task in two overlapping phases. The assignment will be for a period of 9 months, in Phase I and 24 months for Phase II. The consultant will proceed with phase II of the assignment on successful delivery implementation of Phase I milestones including contracting of a contractor to execute the works. The assignment, which will be Lump-sum type of contract for phase I, is planned to commence in early 2024 and Time-based type of contract will commence on stated effectiveness conditions.

- I. Phase I will involve the Network Survey and the Demand Survey as well as assistance to the PIU in preparation of bidding documents, starting with the pilot routes;
- II. Phase II will be supervision of the subsequent installation and network deployment works.

The consultant will only be invited to proceed with Phase II of the assignment upon approval of the client on successful completion of Phase I, as detailed below, and subject to finalization and approval of the designs by the PIU (Project Implementation Unit).

The primary location of the assignment will be in Nairobi, but it will require fieldwork across the country of Kenya.

Phase I: Survey and Design (Lump Sum, covering both staff time and expected travel for fieldwork)

The consultant will undertake the following tasks using two teams (Supply-side Survey Team & Demand Survey Team) spread out across the country. Representatives of ICTA and the Ministry of Education may join the consultant teams for some of the fieldwork. Dates for fieldwork should be coordinated in the project inception report to be prepared by the Consultant.

Phase II: Supervision (Time-based,)

a) Supervision of the implementation of the network

The consultant shall perform the following tasks during supervision phase:

- (i) Project Management Guidelines:** Provide project management expertise to oversee the implementation of the network infrastructure design. Develop a project management guideline plan, define milestones, and monitor progress to ensure timely completion of the project.
- (ii) Vendor/Contractors Management:** Coordinate with vendors, contractors, and suppliers involved in the implementation of the network infrastructure. Ensure that they adhere to project specifications, deliverables, and timelines. Review vendor proposals, contracts, and invoices to ensure compliance with project requirements.
- (iii) Quality Assurance:** Conduct quality assurance checks to verify that the implemented network infrastructure aligns with the design specifications. Perform site visits, inspections, and testing to ensure that the passive and active layers, security measures, and network management components meet the desired standards.
- (iv) Risk Management:** Identify potential risks and develop risk mitigation strategies. Monitor and address any issues or challenges that arise during the implementation phase. Implement appropriate risk management measures to minimize disruptions and ensure the successful completion of the project.
- (v) Collaboration and Coordination:** Facilitate effective communication and collaboration between different stakeholders involved in the network infrastructure design and implementation. Coordinate with government departments, IT teams, and other relevant parties to ensure smooth implementation and integration of the network infrastructure.
- (vi) Documentation and Reporting:** Maintain accurate and up-to-date project documentation, including progress reports, change requests, and meeting minutes. Provide regular status updates and progress reports to the government of Kenya, highlighting key milestones, issues, and recommendations.
- (vii) Compliance and Standards:** Ensure that the implemented network infrastructure design complies with relevant industry standards, regulations, and best practices. Verify that the design and implementation adhere to cyber security guidelines, data protection regulations, and any specific government requirements Kenyan laws & standards, World Bank Operational Safeguard Policies and best practice.
- (viii) Training and Knowledge Transfer:** Facilitate knowledge transfer and training sessions for IT staff, network administrators, and other relevant personnel involved in the operation and management of the network infrastructure. Ensure that they understand the design principles, security measures, and operational procedures of the implemented network.
- (ix) Post-Implementation Support:** Provide post-implementation support, including monitoring the network performance, addressing any post-implementation issues or concerns, and providing guidance for ongoing network management and operations. Offer recommendations for continuous improvement and optimization of the network infrastructure.
- (x) Surveying, Setting Out and Measurement:** Although the Contractor bears ultimate responsibility for the implementation of the works, the Consultant is required to agree and approve reference levels for fibre optic cable route centrelines as proposed by the Contractor to assess whether, once achieved, such levels will be adequate to ensure the long-term durability and stability of the fibre optic cable. The Consultant is required to make an independent assessment of fibre optic cable route conditions and the centreline levels needed to ensure the fibre optic cable can be maintained at the required standards

through execution of normal routine and periodic maintenance works after the Contractor has completed works needed to achieve those levels.

(xi) **Site meetings:** The Consultant shall:

- (a) Arrange a schedule of regular site meetings, site inspections and other job conferences in liaison with the respective Contractors and notify those expected to attend. In arranging these meetings, the consultant is expected to provide a suitable conference facility, printed reports and refreshments.
- (b) Maintain and circulate minutes thereof;
- (c) Maintain liaison with the Contractors principally through the Contractors' respective civil works manager and/or Fibre Optic cable manager, and give assistance in the understanding and interpretation of all aspects of the contract documentation; and
- (d) Work closely with client staff to ensure that as much knowledge and experience is passed on.
- (e) Provide on-site and formal training on all the network components for ICTA staff.

(xii) **Review of Contractor's Performance, Inspection and Tests:** The Consultant shall:

- (a) Conduct on-site observations of the work in progress to determine if the work is proceeding in accordance with the contract schedules, and that completed work conforms to the approved design drawings, terms of reference and specifications.
- (b) Inform the respective Contractors when work is to be corrected or rejected or to be uncovered for observation, or special testing, inspection or approval;
- (c) Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, and record the outcome of these inspections and report as appropriate; and
- (d) Verify that selection and use of materials is in accordance with the specifications.

(xiii) **Review of technical documents submitted by the respective Contractor(s):** The Consultant shall:

- a. Render interpretations necessary for the proper execution and progress of work, with reasonable promptness; and
- b. Render written decisions within a reasonable time, on all claims, disputes and other matters in question relating to the execution or progress of work or the interpretation of the construction contract documents.

(xiv) **Modifications of works:** The Consultant shall:

- (a) Consider and evaluate Contractor's suggestions for modifications in drawings or specifications and report them to the Employer with recommendations;
- (b) Examine Contractor's proposals for changes and provide recommendations to the Employer for approval when changes affect cost. Changes which do not affect cost or quality may be approved on-site and recorded in the monthly progress reports. Such changes shall be effected by written orders issued by the Consultant.

(xv) **Records:** The Consultant shall:

- (a) Maintain at the projects site orderly files for correspondence, reports of site meetings, product and material submissions, reproductions of original construction contract documents including all addenda, variation orders, site instructions, information

and drawings issued subsequent to the start of works contract, as well as Consultant’s clarifications and interpretations of the contract documents, progress reports and other related documents;

(b) Maintain a set of drawings (“as-built” drawings) recording all details of the work as actually executed with reference to contractual scope of work.

(xvi) Payment Certificates: The Consultant shall review applications for payment made by the contractors in accordance with the Conditions of Contract. The Consultant shall ensure that each application details the actual quantities and value of work completed to date compared with the total billed quantity and unit rate for each item in accordance with the Conditions of Contract.

5. Reporting requirements and timelines for deliverables

5.1 Phase I (Total duration of 9 months):

The consultant will present the following reports, workshops, draft bidding documents and maps:

| Report | Details | Timeline for submission of deliverable from date of contract commencement | Number and format of reports presentation |
|---|---|---|---|
| Inception Report | The Consultant will share the detailed approach, a work plan, milestones sources of information, staffing and working arrangements necessary to complete the assignment. The inception report should cover data for fieldwork so that ICTA and beneficiaries may join. The work plan should anticipate risks and propose mitigation measures. | 2 weeks | 4 Hard copies and 1 digital copy |
| Preliminary Network Survey Report | Undertake a desktop survey from all the data and statistics collected from the client and develop a preliminary survey report, Survey sheets and survey files, and proposed digital map platform | 6 weeks | 4 Hard copies and 1 digital copy |
| Draft Bidding Documents and supporting documents incl. specifications, bills of quantities, digital map. Designated routes and digital map to be added as Annexes | Draft bidding documents for: a) Pilot routes (early deliverable) b) Rehabilitation and repair routes c) Resilience routes d) Network extension routes | 6 weeks | 2 Hard copies and 1 digital copy |
| | | 30 weeks | |

| Report | Details | Timeline for submission of deliverable from date of contract commencement | Number and format of reports presentation |
|--|--|--|---|
| Network Survey Report (fieldwork-based) | Overview of the baseline survey data collected and initial descriptive statistics, Challenges and mitigation measures, baseline survey and report covering emerging issues and solutions in development of the survey report including Digital Map | 24 weeks | 4 Hard copies and 1 digital copy |
| Demand survey report (fieldwork-based) | Future projections of internet bandwidth requirements, broken down by geography (eg 47 counties) and by sector (eg Government, education, healthcare etc) | 28 weeks | 4 Hard copies and 1 digital copy |
| Stakeholder consultations | Open consultations (workshop and public website for comments) with major stakeholders, including Government, Private sector, Academia and Civil Society on Digital Map, demand survey and designated routes | 30 weeks | Workshop minutes and participation lists. Copies of written comments from stakeholders. 4 Hard copies and 1 digital copy |
| Final Report and Documentation for Phase 1 | Final set of documents (revised versions of those presented above) including bidding documents, network survey report, demand projections and summary of inputs to stakeholder consultation | 36 weeks | 4 Hard copies and 1 digital copy |

5.2 Phase II (Total duration of 36 months, overlapping with Phase 1):

The consultant will present the following reports:

| Report | Details | Timeline for submission of deliverable from date of contract commencement | Number and format of reports presentation |
|---|---|--|---|
| Inception Report for Phase 2 | The Consultant will share the detailed approach, a work plan/ implementation plan, sources of information, staffing and working arrangements necessary to complete the assignment. The plan should anticipate risk factors and proposed mitigation, sustainability measures based on previous reports | 4 weeks | 4 Hard copies and 1 digital copy |
| Progress Reports | Incorporating all the feedback and discussion notes on the monthly reports. | Monthly | 2 Hard copies and 1 digital copy |
| Supervision of implementation of pilot routes | Covering all details requested above, and including a “lessons learned” report from the procurement phase and the implementation phase | Monthly | 2 Hard copies and 1 digital copy |
| Supervision of implementation of all other routes | Covering all details requested above and KPIs | Monthly | 2 Hard copies and 1 digital copy |
| Final Report | End of Assignment report and delivery of full set of documentation | End of Assignment (in principle 3 years after contract signature commencement) | 4 Hard copies and 1 digital copy |

All draft and final reports shall be submitted in the prescribed format to:

The Chief Executive Officer,
ICT Authority
Telposta Towers 12th Floor, Kenyatta Ave
PO Box 27150 – 00100
Nairobi Kenya
Tel: +254 20 2089061/ 2211960 Fax: +254 20 2211960
Email: procurement@ict.go.ke , info@icta.go.ke
Website: www.icta.go.ke

Attention:

The Project Coordinator
KDEAP

Upon submission of every report, the consultant is expected to make a presentation of the submitted report to the Client in a scheduled meeting. The acceptance of the report shall be recorded in the minutes of the meeting.

6. Payment Schedule

The proposed payment schedules based on satisfactory performance of the contract which will be negotiated with the successful consultant will be as presented in Table 2 below.

Table 2: Proposed payment schedule for Phase 1:

| Report | Time from date of contract signature | Percentage of payment (for Phase 1) |
|---|---|---|
| Inception Report | 2 weeks | 10% |
| Draft Bidding Documents and supporting documents incl. specifications, bills of quantities, digital map. Designated routes and digital map to be added as Annexes | 6 weeks 30 weeks | 5% for early deliverable 5% for later deliverables |
| Network Survey Report (fieldwork-based) | 24 weeks | 30% |
| Demand survey report (fieldwork-based) | 28 weeks | 20% |
| Stakeholder consultations | 30 weeks | 10% |
| Final Report and Documentation for Phase 1 | 36 weeks | 20% |

Proposed Payment Schedule for Phase II:

After the end of each calendar month during the period of the Services, or after the end of each time interval otherwise negotiated and indicated in the contract, the Consultant shall submit to the Client, in duplicate, itemized invoices, accompanied by the receipts or other appropriate supporting documents, of the amounts payable according to the contract for such interval, or any other period as negotiated and indicated in the contract. Each invoice shall show remuneration based on actual inputs of staff and reimbursable expenses separately.

7. Minimum requirements for Consultant's requirements and experience:

The Consulting firm should provide evidence of relevant experience in assignments carried out by the firm or by the lead bid and other members of the consortium, including local partners (in the case of a joint venture). The Consulting firm should also indicate details of the methodology to be followed, under both phases of the assignment, and should provide the CVs of the key staff required for each phase of the assignment.

The Minimum requirements to be met in the bid are as follows:

- (i) **Core business and years in business:** The firm shall be registered/incorporated as a consulting firm with core business in the field of telecommunications consultancy or equivalent for a minimum period of (ten) 10 years.
- (ii) **Relevant experience:** The firm shall demonstrate as having successfully executed and completed at least three assignments of similar nature, complexity and in a similar operating environment in the last eight years, where each assignment/project is at least 500kms. Details of similar assignments, with name and address of the client, scope, value, and period should be provided and submitted.
- (iii) **Technical and managerial capability of the firm:** The firm shall demonstrate as having the requisite technical capacity and managerial capacity to undertake the assignment in the submitted company profile(s).

8. Team composition and qualification and experience requirements and estimated time inputs, for the key experts,

The consultant shall be required to undertake the assignment as a multidisciplinary team comprising of a team lead and key experts. The details provided should include academic qualification and professional qualification of key experts, general experience, specific experience and, if applicable, registration/licensing from a recognized professional body.

• Phase I: Survey and Design

It is anticipated under **Phase I**, at least **87 staff – months** of key professional staff stated below and whose qualifications should be as indicated in Section 5.0, and **around 114 staff months** of more junior staff. The team would be required to accomplish the tasks stated in the TOR of the assignment:

| S. No | Key Staff position | Approximate Staff Months |
|-------|---------------------------------|--------------------------|
| 1. | Telcom Expert/Team Leader (one) | 9 |
| 2 | Fibre optic specialists (four) | 24 |
| 3. | Market analysts (two) | 12 |
| 4. | Environmental Specialist (One) | 9 |
| 5. | Procurement specialist (One) | 9 |
| 6. | GIS specialists (Four) | 24 |
| | Total | 87 |

| S. No | Non-Key Staff position | Approximate Staff Months |
|--------------|--|---------------------------------|
| 1. | Support Staff -Interns (16 No.) ¹ | 114 |
| | Total | 114 |

8.1. Telecom Expert/Team Leader

The Telecom Expert should have:

- At least a Master’s degree in Engineering/ICT, Telecommunications, Electrical Engineering or related field
- Established industry track record of not less than ten (10) years in the field of Telecommunications and ICT
- Track record in network design. As examples, this might include outside plant (OSP), Inside Plant (ISP) fiber installations, Network Design Planning, (Minimum of 3 assignments)
- Fluency in both written and spoken English is essential.

8.2. Fiber Optic Specialists (Four)

The fiber optic specialists should have:

- At least a Bachelor’s degree in a field related to Telecom/IT Engineering or equivalent;
- Established industry track record of not less than five (5) years in the field of Telecommunications and ICT.
- Must have at least five years’ experience in design and configuration of optical transmission networks.

8.3 Market analysts (Two)

The market analysts shall have:

- At least a Bachelor’s degree in Engineering/ICT, Telecommunications, Electrical Engineering, Economics, Geography, Statistics or a related field
- Established industry track record of not less than five (5) years in the field of market analysis in Telecommunications and ICT
- Track record in conduct of market analysis, demand forecasting and assessment of client needs (Minimum of 3 assignments)
- Fluency in both written and spoken English is essential.

8.4 Procurement specialist

The procurement specialist shall have:

- At least a Bachelor’s degree in Finance, Accounting, Procurement or a related field
- Established industry track record of not less than five (5) years in the field of procurement

¹ 16 support staff will be required to support the 6 functions i.e Telcom Expert/Team leader (2 support staff for 18 staff months), Fiber Optic Specialists (4 support staff for 24 staff months), Market Analysis (2 support staff for 12 staff months), Environmental Specialists (2 support staff for 18 staff months), Procurement Specialists (2 support staff for 18 staff months), GIS Specialists (4 support staff for 24 staff months)

- Track record in conduct of assisting teams with procurement of goods and services, preferably for telecommunications (Minimum of 3 assignments)
- Fluency in both written and spoken English is essential.

8.5. Geographical Information Systems (GIS) specialist (Four)

The GIS specialist should have:

- A minimum of Bachelor’s degree in GIS, Geography or related field.
- Established industry track record of not less than five (5) years in the field of GIS
- A minimum of 3 years’ specific experience in Digital Mapping and field work;
- Fluency in both written and spoken English is essential.

8.6. Environmental Specialist (One)

The Environmental specialist should have:

- A minimum of Bachelor’s degree in Environmental science, or a related degree, with knowledge in social work
- Established track record of post graduate (at least five years general experience).
- Professional post graduate experience in impact assessments which have been issued NEMA licences (or equivalent) and which involve infrastructural works, social analysis and social work.
- Fluency in both written and spoken English is essential, the knowledge of

Swahili language will be an added advantage

Phase II: Supervision

It is anticipated that under **Phase II** of at least 168 staff months of key professional staff will be required, whose qualifications should be as indicated in Section 6.0 would be required to accomplish the tasks stated in the TOR. A further 240 staff months of more junior staff is anticipated:

| S. No | Key Staff position | Approximate Staff Months |
|--------------|---------------------------------------|---------------------------------|
| 1. | Telecom Expert/Team Leader | 24 |
| 2. | Fibre Optic Specialists (Three)) | 72 |
| 3. | Environmental Specialist (One) | 24 |
| 4. | Contract Management specialists (One) | 24 |
| 5. | M&E Specialists (Two) | 12 |
| 6. | GIS specialist (Two) | 12 |
| | Total | 168 |

| S. No | Non-Key Staff position | Approximate Staff Months |
|--------------|---|---------------------------------|
| 1. | Junior Support Staff, Researchers and Interns (10) ² | 240 |
| | Total | 240 |

For interns, see above

The consultant is expected to have other relevant back-office support personnel and resources not limited to above experts to ensure successful completion of the assignment. The consultant shall be selected in accordance with the Consultant Qualifications procedures as set out in the World Bank Procurement Guidelines.

8.7. Telecom Experts/Team Leader (One)

The Telecom Expert should have:

- At least a Master’s degree in Engineering/ICT, Telecommunications, Electrical Engineering or related field
- Established industry track record of not less than ten (10) years in the field of Telecommunications and ICT
- Track record in the design of outside plant (OSP), Inside Plant (ISP) fiber installations, Network Design Planning, (Minimum of 3 assignments)

8.8 Fibre optic specialists (Three)

The Fiber optic specialist should have:

- At least a Bachelor’s degree in a field related to Telecom/IT Engineering or equivalent;
- Established industry track record of not less than five (5) years in the field of Telecommunications and ICT.
- Must have at least five years’ experience in design and configuration of optical transmission networks.

8.9 Environmental Specialist

The Environmental specialist should have:

- A minimum of Bachelor’s degree in Environmental science, or a related degree, with knowledge in social work
- Established track record of post graduate (at least five years).
- Familiarity with World Bank and NEMA resettlement regulations is essential.
- Fluency in both written and spoken English is essential, the knowledge of Swahili language will be an added advantage

8.10 Contract management specialist

The contract management specialist should have:

- At least a Bachelor’s degree in Finance, Accounting, Procurement or a related field

² 10 Junior Support Staff, Researchers and Interns will be required to support the 6 key functions i.e. (Telcom Expert/Team Leader (1 support staff for 24 staff months), Fibre Optic Specialists (3 support staff for 72 staff months), Environmental Specialist (1 support staff for 24 staff months), Contract Management Specialists (1 support staff for 24 staff months), M&E Specialists (2 support staff for 48 staff months) and GIS Specialists (2 support staff for 48 staff months)

- Established industry track record of not less than five (5) years in the field of procurement and contract management
- Track record in conduct of assisting teams with contract management of goods and services, preferably for telecommunications (Minimum of 3 assignments)
- Fluency in both written and spoken English is essential.

8.11 GIS specialist

The GIS specialist should have:

The GIS specialist should have:

- A minimum of Bachelor's degree in GIS, Geography or related field.
- Established industry track record of not less than five (5) years in the field of GIS
- A Minimum of 3 years' specific experience in Digital Mapping and field work;
- Fluency in both written and spoken English is essential.

8.12 Monitoring and evaluation specialist

The monitoring and evaluation expert should have:

- At least a Bachelor's degree in Engineering/ICT, Telecommunications, Electrical Engineering, Economics, Geography, Statistics or a related field
- Established industry track record of not less than five (5) years general experience in the field of M&E and impact analysis in Telecommunications and ICT
- Track record in conduct of market analysis, demand forecasting and impact assessment (Minimum of 3 assignments)
- Fluency in both written and spoken English is essential.

8.13 Management and Accountability of the Assignment

The consultant shall report to the Chief Executive Officer administratively and to the Project Manager (KDEAP) operationally.

9. Responsibilities of the client

The Consultant will be provided with the following relevant documents on implementation of the project i.e. Existing Infrastructure Drawings and design; the National Digital Masterplan. Installed Existing cables documentation including any updates, available and any new cable business plan and/or sustainability reports, etc. The Consultant will be supported where applicable with introductory letters to stakeholders to facilitate data collection and to conduct interviews.

The Employer will provide, as and when needed, working space at ICT Authority and its regional offices, vehicles and accommodation during field supervision for the consultant to carry out project related assignments. The Employer shall provide the Consultant, without charge:

- a) Assistance as may reasonably be required; and
- b) Such other support facilities as may reasonably be needed for the expeditious performance of the required services, including pertinent files, documents and working papers.
- c) Vehicles and accommodation during field supervision

10. Responsibilities of the Consultant:

The Consultant shall share with the client personnel the following during the period:

- 1) Detailed information (well in advance) of the planned timetable for field work;
- 2) Access to the survey data collection system
- 3) Access to the GIS system and digital mapping platform
- 4) Printing facilitation
- 5) Access to network assessment tools