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REPUBLIC OF KENYA

REQUEST FOR EXPRESSION OF INTEREST FOR SURVEY, DESIGN & SUPERVISION OF THE INSTALLATION OF AN OPTIC FIBRE BACKBONE INFRASTRUCTURE ALONG THE ISIOLO MANDERA ROAD

REF NO:

KE-ICTA-300778-CS-QCBS

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CLOSING DATE: 28th July, 2021 AT 10:00 A.M

HORN OF AFRICA GATEWAY DEVELOPMENT PROJECT

TERMS OF REFERENCE

SURVEY, DESIGN AND SUPERVISION OF THE INSTALLATION OF AN OPTIC FIBRE BACKBONE INFRASTRUCTURE ALONG THE ISIOLO-MANDERA ROAD

1. Background

The Government of the Republic of Kenya (GoK) has received a Credit from the International Development Association (IDA) towards the cost of the Horn of Africa Gateway Development Project (HoAGDP). The project development objectives are to improve: (a) the movement of people and goods and digital connectivity and access to social services to communities at designated locations along the targeted sections of the Isiolo-Mandera Regional Road Corridor; and (b) the capacity of selected transport related institutions in Kenya.

The project has several components and will support various investments including upgrading the Isiolo–Mandera Regional Road Corridor to Bitumen Standards, conducting a baseline survey, preparation of a social and environmental safeguards plan, design and supervision of installation of a high-capacity Optic Fibre backbone to enhance internet connectivity ("The ICT Component"). The total length of the road is 740 Km with connecting spurs estimated to be 200 Km long.

The GoK intends to apply a portion of the proceeds of the Credit towards the design and installation of a high-capacity Optic Fibre backbone network along the Isiolo–Mandera Road. The project, amongst others, supports Kenya's economic development strategy and addresses the need to enhance internet connectivity to the North Eastern part of the country as well as to the neighbouring countries of Ethiopia and Somalia, and the larger Horn of Africa region. This connectivity will extend to the Port of Mombasa, and join other high-capacity submarine cables, such as Djibouti Africa Region Express (DARE) and the Pakistan and East Africa Connecting Europe (PEACE) to further improve the regional digital connectivity.

The network will traverse five (5) counties namely Isiolo, Meru, Garissa, Wajir and Mandera. An integrated infrastructure development approach has been adopted for implementation of this project. The civil works relating to laying of Fibre Optic Cable ducts will be integrated in the road by the Kenya National Highways Authority (KeNHA). The ICT Authority will be responsible for design and supervision of the installation of the ducts, active equipment, fibre blowing, connections to schools, hospitals, other strategic locations including pastoralist road side markets, export processing zones, rest stops, community centers and service centers along the corridor as part of the smart roads network.

The ICT Authority, a state corporation under the Ministry of ICT, Innovation and Youth Affairs (MIIYA) and the implementing agency for the ICT component of the project now invites proposals to provide the required consultancy services as described further in these Terms of Reference.

2. Objectives of the Assignment

The objectives of the assignment are to:

(a) Undertake a Baseline survey of the Isiolo-Mandera road corridor

(b) Design an optic fibre cable network along the 740 Km Isiolo-Mandera road and connecting these optic fiber cables to government offices, schools, hospitals, community centers, social amenities, markets and business centers within the corridor

(c) Supervise the implementation of the 740km Isiolo-Mandera Optic Fibre Cable (OFC) and estimated 200 Km spur fiber cable

3. Scope of Work

The assignment will be undertaken in two phases. Phase I will involve the survey and design of the main Optic Fibre Backbone and corresponding spurs while Phase II will be supervision of installation of design and related works. The consultant will proceed with Phase II of the assignment only on successful implementation of Phase I, detailed below, and subject to finalization of the OFC civil works by or as advised by KENHA. The bidder should take into account that KENHA already commenced the road works from Isiolo-Kulamawe (72.3 Km) and from Kulamawe-Modogashe (120 Km).

Phase I: Survey and Design (Lump Sum)
The consultant will undertake the following tasks using two teams:

3.1. Undertake a Baseline survey of the Isiolo-Mandera corridor

(i) Undertake detailed network survey of the entire road corridor area and submit a comprehensive survey report on optic fiber cable routes, transmission network, Internet Protocol (IP) network, suitable power solutions among others.

(ii) Identify, quantify, map out and document all schools, hospitals, government offices, other strategic locations including roadside markets, export processing zones, rest stops, community centers and service centers, 10 Km from either side of the road, along the corridor in the project area as part of the integrated infrastructure development and smart roads network that shall be served.

(iii) Undertake a detailed survey of the existing network and give recommendations for relocation or rehabilitation to ensure continuity of Information and Communication Technology (ICT) services during road and fibre construction.

(iv) Provide advisory services in the identification and/or selection, establishment, training and management of community and service centers along the corridor

(v) Carry out a network user requirement survey for GoK users, private sector and neighbouring countries (Ethiopia and Somalia) and propose the best connectivity solution.

(vi) Develop a digital map of existing and planned fiber in the region

3.2. Design an optic fibre cable network backbone along the 740 Km Isiolo-Mandera road and connecting to approximately 200 Km spurs

(i) Prepare a high-level network concept design

(ii) Prepare a detailed network concept design for the ICT infrastructure network including but not limited to fiber optic cable network, active equipment, power solutions, monitoring solutions, customer premises equipment (CPE) with detailed specifications for each and estimated costs for the items and required works and services.

(iii) Prepare Low Level Design (LLD) for the network that will be used for implementation with detailed specifications and estimated costs, including a network security protection plan and a data protection plan.

(iv) Provide connectivity solutions for Kenya-Ethiopia-Somali border points in relation to appropriate "meet me" points in line with the Horn of Africa (HOA) Member States Directives.

(v) Identify all the Key Performance Indicators (KPI) that are required to optimize for best performance of the integrated network.

(vi) Design appropriate and sustainable community service centers along the corridor taking into account the socio-economic factors of the region

(vii) Design for the establishment, training and management of community and service centers along the corridor

3.3. Preparation of bidding documents

(i) Prepare bidding documents for the works in three proposed contracts:

- Supply and installation of the fiber optic cable: Isiolo – Mandera corridor, approximately 740km. This contract will include among others supply and installation of the optic fiber cable, power equipment, transmission equipment, Construction and equipping of Core and Aggregation sites

- Civil works, Supply and installation of the fiber optic cable of spurs along Isiolo – Mandera corridor, approximately 200km

- Last mile connectivity - installation of connectivity (through leased lines or fiber links) to public facilities and community centres and lighting of the same. The facilities will include supply and installation of coaxial cables, phone lines, or wireless transmissions, routers etc. as necessary

(ii) To prepare a detailed cost estimates schedule for the project

(iii) To prepare and submit technical specifications and documents necessary to conduct an International Competitive Bidding for the planned Optic Fibre Network using current World Bank Procurement Regulations

(iv) Prepare an accompanying training plan for sustainability of the network and maintenance

Phase II: Supervision (Time Based)

3.4. Supervision of the implementation of the 740km Isiolo-Mandera OFC and estimated 200 Km spur fiber cable

The consultant shall perform the following tasks during supervision:

(i) Undertake supervision activities using two teams (concurrently or separately as needed) to cover installation of the ducts and OFC along the Main 740 Km Isiolo-Mandera road and the estimated 200 Km spurs as follows;
- Isiolo – Wajir section plus spurs along this section; and
- Wajir – Mandera section plus spurs along this section.

(ii) Inspect the performance of the works and systems installations and ensuring that they are done according to the specifications laid down in the network design and tender documents and comply with the specifications.

(iii) Supervise, or perform tests on the materials and/or work

(iv) Inspect and supervise the contractor's work, notifying the contractor and the client of any defects found and requesting remedy as considered necessary

(v) Ensuring that the works are performed under the required safety and environmental protection measures as per the relevant Kenyan laws, standards, World Bank Operational Safeguard Policies and best practice.

(vi) Guiding the contractor teams on the project implementation when clarification on the design is required.

(vii) Ensuring the necessary integration with existing systems and networks are done and performance is optimized.

(viii) Attending the acceptance tests and verifying that the results reflect the engineering requirements of the equipment and network standards.

(ix) Review and recommend the Contractor's programme, schedule of works and updates thereof.

(x) Advice on requests for contract changes as made by either the contractor or the employer.

(xi) Periodic verification of service quality levels achieved for network performance as per the KPI's.

(xii) Review the completion of the works for the purpose of issuance of completion certificates.

(xiii) Provide qualified technical expert teams that will oversee day to day execution and inspection of ongoing works on site.

(xiv) Provide advisory opinions when requested by the client.

(xv) Surveying, Setting Out and Measurement:

Although the Contractor bears ultimate responsibility for the design/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.

(xvi) Site meetings.

The Consultant shall:

(a) Arrange a schedule of monthly site meetings, site inspections and other job conferences in liaison with the respective Contractors and notify those expected to attend. In arranging these meetings, he is expected to maintain and circulate minutes thereof;

(b) 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

(c) work closely with client staff to ensure that as much knowledge and experience is passed on.

(d) Provide on-site and formal training on all the network components for ICTA staff.

(xvii) 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 construction (duct/civil works and FOC) contract schedules, and that completed work conforms to the construction contract drawings and specifications;

(b) inform the Contractor 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.

(xviii) 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.

(xix) Modifications

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.

(xx) Records

The Consultant shall:

(a) Maintain at the project 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 chainage along the fibre optic cable

(xxi) Payment Certificates

The Consultant shall review applications for payment made by the contractor 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.

(xxii) Final Completion of Works

The Consultant shall review applications for payment made by the contractor 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.

3.5. The Two-Task Deliverables and Timeline Requirements are as follows:

3.5.1. Phase I (Total duration of 9 months):

The consultant will present the following reports:

Item	Report	Details	Time from date of Commencement of the Assignment	Output
3.5.1.1.	Inception Report	The Consultant will share the detailed approach, a work plan, sources of information, staffing and working arrangements necessary to complete the assignment. The work plan should anticipate risks and propose mitigation measures.	3 weeks	3 hardcopies, 2 electronic copies [CD-ROM + Flash drive]
3.5.1.2.	Preliminary Design Report	In 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 preliminary design drawings	24 weeks	3 hardcopies, 2 electronic copies [CD-ROM + Flash drive]

Item	Report	Details	Time from date of Commencement of the Assignment	Output
3.5.1.3.	Draft Final Design Reports v1	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 • the Baseline Survey and Current State of FoC Infrastructure; and • The Design of the proposed Optic Fibre Cable Network Report • Draft final design drawings	30 weeks	3 hardcopies, 2 electronic copies [CD-ROM + Flash drive
3.5.1.4.	Draft Bidding Documents	(i) The Bidding Document for the proposed Optic Fibre Cable Network Report (ii) Including BoQ for a. Supply and installation of Fibre Optic Cable(FOC), Active equipment,	30 Weeks	3 hardcopies, 2 electronic copies [CD-ROM + Flash drive

Item	Report	Details	Time from date of Commencement of the Assignment	Output
		power equipment along the 740 Km Isiolo-Mandera road b. Civil works, Supply and installation of FOC in spurs along the Isiolo-Mandera road corridor (approximately 200 Km) connecting identified institutions c. Installation of internet connectivity to the identified institutions, public facilities and community centres long the Isiolo-Mandera road corridor		
3.5.1.5.	Draft Cost Estimates Report	Cost estimates of the goods and services expected	30 Weeks	3 hardcopies, 2 electronic copies [CD-ROM + Flash drive

Item	Report	Details	Time from date of Commencement of the Assignment	Output
3.5.1.6.	Final Design Report	Incorporating all the feedback and discussion notes on the draft report. (i) the Baseline Survey and Current State of FoC Infrastructure; and (ii) The Design of the proposed Optic Fibre Cable Network Report (iii) Including final design drawings	36 weeks	3 hardcopies, 2 electronic copies [CD-ROM + Flash drive]
3.5.1.7.	Final Bidding Documents	The Bidding Document for the proposed Optic Fibre Cable Network Report Including final BoQ	36 weeks	3 hardcopies, 2 electronic copies [CD-ROM + Flash drive]

3.5.2. Phase II (Total duration of 24 months):

The consultant will present the following reports:

Item	Report	Details	Time from date of Commencement of the Assignment	Output
3.5.2.1.	Design Review/Inception Report	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	4weeks	3 hardcopies, 1 electronic copies [CD-ROM + Flash drive]
3.5.2.2.	Monthly Reports	Preparation and submission of monthly reports	Every Month	3 hardcopies, 2 electronic copies [CD-ROM + Flash drive]

Item	Report	Details	Time from date of Commencement of the Assignment	Output
3.5.2.3.	Quarterly Reports	Incorporating all the feedback and discussion notes on the monthly reports.	Every Quarter	3 hardcopies, 2 electronic copies [CD-ROM + Flash drive]
3.5.2.4.	Final Report	End of Assignment	End of Assignment	3 hardcopies, 2 electronic copy [CD-ROM + Flash drive]

4. Facilities Provided by the Employer:

4.1. Data, Local Services, Personnel and Facilities

The Consultant will be provided with the following relevant documents on implementation of the National Optic Fibre Backbone Infrastructure; the National Digital Masterplan. Installed NOFBI 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.

4.2. Other Facilities

The Employer will provide as and when needed working space at ICT Authority 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.

5. Key Experts Qualifications and Experience Requirements in Phase I

The consultant shall be required to undertake the assignment as a multidisciplinary team comprising of a team lead and key experts:

5.1. Telcom Expert/Team Leader

The Telcom Expert should have:

- A Master's Bachelor'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 and supervision of outside plant (OSP) and Inside Plant (ISP) fiber installations.
- Should have completed work in a similar role where the value of the works designed or supervised was at least USD 10 million for each assignment.
- Registration with relevant professional body in Kenya (or equivalent)
- Fluency in both written and spoken English is essential.

5.2. Optical Transmission Expert

The Key expert should have:

- A Bachelor's degree in a field related to Telecom/IT Engineering or equivalent;
- Established track record for at least five (5) years of experience in transmission networks e.g., CWDM/DWDM, OTN and SDH or equivalent.
- Key experts should have demonstrated experience in planning Telecom, IT networks, Transmission Systems (SDH, CWDM, DWDM, SDN, OTN interface protocols, SDN SNMP Protocols or equivalent) Fiber Optic Cable based on backbone and access networks
- Must have at least five years' experience in design and configuration of optical transmission networks.
- Must have at least five years' experience with equipment and service configuration for multi-vendor environments.
- Should have Cisco Certified Network Professional (CCNP) or equivalent. A Cisco Certified Internet Expert (CCIE) or equivalent will be an added advantage

5.3. Internet Protocol (IP) Transmission Expert

The Key IP expert should have:

- Bachelor's degree in a field related to Telecom/IT Engineering or equivalent
- Established track record for at least five (5) years of experience in IP networks.
- Must demonstrated experience in planning Telecom, IT networks, Fibre Optic Cable based on backbone and access networks.
- Should have demonstrated proficiency in AutoCAD, Google earth, GIS based systems or equivalent
- Must have at least five years' experience in design and configuration of IP networks.
- Must have at least five years' experience with equipment and service configuration for multi-vendor environments.
- Should have Cisco Certified Network Professional -Routing and Switching (CCNP R&S) or equivalent. A Cisco Certified Internet Expert (CCIE) or equivalent will be an added advantage.

5.4. Electrical Power expert

The Key expert should have:

- Master's degree in Power or Electrical Engineering or equivalent.
- Established track record of at least five (5) years of experience in renewable energy (Both Solar and Wind energy) in the Telecommunication services
- Should have demonstrated experience in planning of power design for telecommunication installations.
- Should have relevant Certifications from the Energy and Petroleum Regulatory Authority (EPRA Solar, Electrical categories) or equivalent
- Should have demonstrated experience on Hybrid power knowledge, Power Equipment, Conductor sizing and power control automation

5.5. Telcom Technology Analyst/Designer

The Key expert should have:

- Bachelor's degree in Telecommunications or Business or equivalent.
- Established track record of at least five (5) years of experience in development and establishment of sustainable Telcom connectivity solutions to end-users

- 3 years' experience with a Computer Assisted Design (CAD) application, OSP design, ISP design, Transmission Design, IP design
- Registration with relevant body (Engineering Board of Kenya or Equivalent)

5.6. Surveyor

The Key expert should have:

- Bachelor's degree in survey
- Experience of 12 years post-graduation
- Should have served in similar role in at least two occasions where the value of the roads works was at least USD 10 million

5.7. Civil Engineer

The Key expert should have:

- Bachelor's degree in Civil Engineering
- Experience of 5 years post-graduation
- Should have served in similar role in at least two occasions where the value of the roads works was at least USD 10 million

5.8. Environmental Specialist

The Key expert should have:

- Bachelor's degree in Environmental science with knowledge in social work
- Established track record of at least 12 years professional experience after graduation in impact assessments which have been issued NEMA licences (or equivalent) and which involve infrastructural works with value of at least USD 10 million and social analysis and social work.
- 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

6. Key Experts Qualifications and Experience Requirements in Phase II

The consultant shall be required to undertake the assignment as a multidisciplinary team comprising of a team lead and key experts:

6.1. Telcom Expert/Team Leader

The Telcom Expert should have:

- A Master's Bachelor'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 and supervision of outside plant (OSP) and Inside Plant (ISP) fiber installations.
- Should have completed work in a similar role where the value of the works designed or supervised was at least USD 10 million for each assignment.
- Registration with relevant professional body in Kenya (or equivalent)
- Fluency in both written and spoken English is essential

6.2. Resident Engineer

The Resident Engineer should have:

- A Bachelor's degree in Engineering/ICT, Telecommunications, Electrical Engineering or related field
- Established industry track record of not less than five (5) years in the field of Telecommunications and ICT
- Track record in the design and supervision of outside plant (OSP) and Inside Plant (ISP) fiber installations.
- Should have completed work in a similar role where the value of the works designed or supervised was at least USD 1 million for each assignment.
- Registration with relevant professional body in Kenya (or equivalent)
- Fluency in both written and spoken English is essential.

6.3. Optical Transmission Expert

The Key expert should have:

- A Bachelor's degree in a field related to Telecom/IT Engineering or equivalent;
- Established track record for at least five (5) years of experience in transmission networks e.g., CWDM/DWDM and SDH or equivalent.
- Key experts should have demonstrated experience in planning Telecom, IT networks, Fiber Optic Cable based on backbone and access networks.
- Must have at least five years' experience in design and configuration of optical transmission networks.
- Must have at least five years' experience with equipment and service configuration for multi-vendor environments.
- Should have Cisco Certified Network Professional (CCNP) or equivalent. A Cisco Certified Internet Expert (CCIE) or equivalent will be an added advantage.

6.4. Internet Protocol (IP) Transmission Expert

The Key IP expert should have:

- Bachelor's degree in a field related to Telecom/IT Engineering or equivalent
- Established track record for at least five (5) years of experience in IP networks.
- Must demonstrated experience in planning Telecom, IT networks, Fibre Optic Cable based on backbone and access networks.
- Should have demonstrated proficiency in AutoCAD, Google earth, GIS based systems or equivalent
- Must have at least five years' experience in design and configuration of IP networks.
- Must have at least five years' experience with equipment and service configuration for multi-vendor environments.
- Should have Cisco Certified Network Professional -Routing and Switching (CCNP R&S) or equivalent. A Cisco Certified Internet Expert (CCIE) or equivalent will be an added advantage.

6.5. Electrical Power expert

The Key expert should have:

- Master's degree in Power or Electrical Engineering or equivalent.
- Established track record of at least five (5) years of experience in renewable energy (Both Solar and Wind energy) in the Telecommunication services
- Should have demonstrated experience in planning of power design for telecommunication installations.
- Should have relevant Certifications from the Energy and Petroleum Regulatory Authority (EPRA Solar, Electrical categories) or equivalent
- Should have demonstrated experience on Hybrid power knowledge, Power Equipment, Conductor sizing and power control automation

6.6. Telcom Technology Analyst/Designer

- Bachelor's degree in Telecommunications or Business or equivalent.
- Established track record of at least five (5) years of experience in development and establishment of sustainable Telcom connectivity solutions to end-users
- 3 years' experience with a Computer Assisted Design (CAD) application, OSP design, ISP design, Transmission Design, IP design
- Registration with relevant body (Engineering Board of Kenya or Equivalent)

6.7. Surveyor

- Bachelor's degree in survey
- Experience of 12 years post-graduation
- Should have served in similar role in at least two occasions where the value of the roads works was at least USD 10 million

6.8. Civil Engineer

- Bachelor's degree in Civil Engineering
- Experience of 5 years post-graduation
- Should have served in similar role in at least two occasions where the value of the roads works was at least USD 10 million

6.9. Environmental Specialist

- Bachelor's degree in Environmental science with knowledge in social work
- Established track record of at least 12 years professional experience after graduation in impact assessments which have been issued NEMA licences

(or equivalent) and which involve infrastructural works with value of at least USD 10 million and social analysis and social work.

- 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, but is not mandatory

7. Professional Staffing Inputs

7.1. Key Staffing Inputs

- **Phase I: Survey and Design**

It is anticipated under **Phase I**, **24 staff – months** of key professional staff stated below and whose qualifications should be as indicated in Section 5.0 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	9.0
2.	Surveyor (2 No.)	2.0
3.	Civil Engineer	2.0
4.	Environmental Specialist	1.0
5.	Optical Transmission Expert	3.0
6.	IP Transmission Expert	3.0
7.	Electrical Power Expert	3.0
8.	Telcom Technology Analyst	1.0
	Total	**24**

- **Phase II: Supervision**

It is anticipated that under **Phase II**, **52 staff – months** of key professional staff and whose qualifications should be as indicated in Section 6.0 would be required to accomplish the tasks stated in the TOR:

S. No	Key Staff position	Approximate Staff Months
1.	Telcom Expert/Team Leader	8.0
2.	Resident Engineer	24.0
3.	Surveyor (2 No.)	2.0
4.	Civil Engineer (2 No.)	6.0
5.	Environmental Specialist	2.0
6.	Optical Transmission Expert	2.0
7.	IP Transmission Expert	2.0
8.	Electrical Power Expert	4.0
9.	Telcom Technology Analyst	2.0
	Total	**52**

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. Consultant Reporting Requirements

The consultant shall report to the Chief Executive Officer administratively and to the Project Manager/Horn of Africa Gateway Development Project (HoAGDP) operationally.

9. Indicative assignment timeframe

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 implementation of Phase I and subject to finalization of the FOC civil works undertaken by KeNHA. The assignment, which will be Lump-sum type of contract for phase I and time-based for phase II is planned to commence by June 2022.