

DIGITAL CASA-KYRGYZ REPUBLIC PROJECT

TERMS OF REFERENCE

FOR INDIVIDUAL CONSULTANT FOR ASSESSMENT AND DETAILED DESIGN OF THE EXPANSION OF THE EXISTING GOVERNMENT NETWORK G-NET (CS-IC-1-2-1)

Background

The «Digital CASA-Kyrgyz Republic» project within the context of the Digital CASA Regional Program, has as its key development objective to “increase access to more affordable internet, crowd-in private investment in the ICT sector, and improve the government’s capacity to deliver digital government services in the Kyrgyz Republic, by contributing to the development of a regionally integrated digital infrastructure and enabling environment”, which will create the foundations for the development of the digital economy in the Kyrgyz Republic. In line with the findings of the World Development Report 2016 “Digital Dividends”, «Digital CASA Kyrgyz Republic» project is expected to lead to increased economic growth, improved employment opportunities, better service delivery by the Government and the private sector. The «Digital CASA Kyrgyz Republic» project will stimulate the growth of the ICT industry by providing open, equal access to high-bandwidth connectivity; achieve fiscal savings in capital and operating costs through the introduction of digital infrastructure sharing by the government; and overall lead to improved investment climate and greater participation of the private sector in the economy.

The «Digital CASA-Kyrgyz Republic» will support four key components: (a) Regional Digital Connectivity Infrastructure, promoting more affordable, high-quality Internet access for citizens, businesses, and Government by incentivizing private sector network infrastructure development and service provision at the regional and national level; (b) Regional Datacenters, Digital Platforms and Smart Solutions, building cloud-based shared datacenter infrastructure and platforms for the Government and the private sector to securely deliver better services to citizens; (c) Enabling Environment for Digital Economy, strengthening and harmonizing the laws and regulations related to the digital economy across the region, including in the context of the EAEU, development of policies and strategies, digital leadership, digital economy skills, and strategic communications; and (d) Project Management, to support effective project activities and strong delivery of results.

Component 1: Regional Digital Connectivity Infrastructure

This component will support targeted public sector financing aimed at catalyzing private sector investments in the deployment of additional domestic and regional digital connectivity infrastructure and creating a more competitive environment in the sector, while also providing digital connectivity services for the Government’s own internal use. As a result, the Government will not own public networks, but will be a user of connectivity services that will be delivered to targeted institutions such as local municipalities, hospitals, schools, police stations, post offices, and Service Centers of the SRS. Connectivity services may be provided on an Indefeasible Right of Use (IRU) basis. The proposed domestic and cross-border network will serve three key overlapping purposes: (a) expand the Kyrgyz portion of a redundant and integrated Central/South Asian regional backbone; (b) serve the purposes of national backbone providing high quality connectivity services to all parts of the country; and (c) serve as the underlying infrastructure for provision of last mile connectivity services to public institutions throughout the country. The network will be created as a collection of networks owned by telecommunications market participants, where the Government will act as a bulk purchaser of connectivity services to encourage private sector investment in building and operating missing links or expanding the

capacity of existing links where needed. The project will adopt a ‘cascade’ approach (Maximizing Finance for Development) with the focus on attracting private sector investment through a variety of PPP arrangements and innovative financing mechanisms as outlined in the following sections. This component is structured along two main subcomponents: (a) Improving Regional Connectivity; and (b) Increasing the Capacity and Reach of the Government Network (G-Net).

Subcomponent 1.1: Improving Regional Connectivity

This subcomponent will improve regional digital connectivity by supporting, through a competitive bidding process, the establishment of a redundant and resilient regional backbone network, consisting of both existing and new networks, that provides multiple cross-border connectivity alternatives and reaches every region within the country. The Government will achieve this not by procuring directly the establishment of networks, but by acting as a long-term purchaser of connectivity services in the form of bundles of services, including IRUs, in target locations. The project will therefore strive to attract private investment to encourage private sector operators and service providers to expand and share their existing regional and domestic fiber optic links, establish new cross-border fiber optic links to strengthen the connectivity with neighboring countries, and deploy of high-capacity, domestic fiber optic and wireless networks. The project will also support infrastructure sharing arrangements with other infrastructure sector providers, such as electricity transmission companies (for example, CASA-1000 and Kyrgyz Energy Holding) and railways. It is expected that the backbone will reach every district and most municipalities with the exact details to be provided through the feasibility study.

Subcomponent 1.2: Increasing the Security, Capacity and Reach of the Government Network (G-Net)

This subcomponent will build on the digital connectivity infrastructure established under subcomponent 1.1 to support increasing the security, capacity, and geographic reach of the Government’s internal digital network ‘G-Net’ used exclusively for the purposes of official Government and municipal communications. G-Net will be established as a hybrid physical/virtual network, as it will leverage the already existing physical network owned and operated in Bishkek by Transcom (a subsidiary SOE established under the SCITC which operates a small network comprised of approximately 60 km fiber optic lines in Bishkek connecting 34 central Government institutions around the city) and will expand it throughout the country on a virtual basis by purchasing capacity on the networks of commercial operators. In addition to these last mile connectivity services, which will be procured on a bundled basis for cost-saving and overall efficiency purposes with the creation of the backbone network (and are therefore included under subcomponent 1.1), G-Net will require the procurement of specialized networking and cybersecurity equipment, cabling, and IT infrastructure. This specialized hardware and software will be provided to the target institutions that will be connected to this network, including limited end-user computing equipment for selected target institutions, as needed. The list of public institutions and target municipalities under subcomponents 1.1 and 1.2 will be the same, and will include schools, post offices, police stations, local government offices, hospitals/clinics, as well as the service centers of the SRS, among others.

Objectives of the assignment

SCITC intends to hire a consultant for assessment and detailed design of the expansion of the government network (G-Net), which is operated by State Enterprise Transcom under the SCITC. The consultant will coordinate his/her work with the work of the consultants selected to develop feasibility study and bidding documents under sub-component 1.1, considering that the physical connectivity for public institutions will be provided under that sub-component.

Scope of work

The consultant will provide advice on any issues related to the design and expansion of the G-Net. The consultant should perform the following tasks:

1. Collect all the necessary data to support the assessment of all telecommunications services and infrastructure used by public institutions within the Kyrgyz Republic. Since the G-Net services are provided by the state enterprise «Transcom» under the SCITC, the individual consultant should take into account all existing G-Net telecommunication infrastructure including terminal equipment;
2. Assessment of traffic demand for G-Net services, including voice and data transmission, with a breakdown of demand for internal and external communication services for the public sector:
 - define the list of services and estimate the traffic growth for each government agency which is connected or should be connected to G-Net, from all regions of the Kyrgyz Republic for the next 5 years;
3. Provide technical analysis of available ICT infrastructure in participating government agencies (server equipment, hardware and software supporting the main information systems of government agencies, routers and switches, and other means necessary to connect to the G-Net);
4. Develop criteria for the classification of public institutions, allowing them to be grouped according to common features and to determine on this basis the standard specifications of equipment and/or software for each group;
5. Develop a phased connection plan for the expansion of the G-Net to all public institutions;
6. Identify possible commercial, legal, political and regulatory barriers to the connection of public institutions to the G-Net and to identify ways to solve them;
7. Develop a detailed network design, structured in two phases (expansion and upgrades within Bishkek, and expansion throughout the Kyrgyz Republic), including the topology and structure of the network, the choice of technology, taking into account the power and terminal equipment requirements for all connections. The network design should aim for the creation of a converged voice and data network for internal communications between public institutions;
8. Include in the design the necessary cybersecurity requirements for all connections in the project (hardware and software that meets international requirements and legislation of the Kyrgyz Republic);
9. Prepare detailed technical specifications and other documents required for the procurement of the necessary equipment, software, goods and services for the G-Net expansion;
10. Develop regulatory, licensing and contractual conditions that will be required from potential suppliers during the procurement process and subsequent successful implementation of the contract;
11. Review the draft reports of consultants selected to support sub-component 1.1 and provide recommendations to ensure that the physical connectivity provided under that sub-component supports the objectives of the G-Net construction.

All recommendations made, as well as the reliability and accuracy of results obtained during the design of the G-Net may affect the successful implementation of the Digital CASA project and its stated objectives.

Deliverables and Administrative arrangements

The consultant should provide the following deliverables:

Deliverable 1 – within 4 weeks after signing the contract

1. Initial report including:

- detailed assessment of the existing and planned infrastructure of G-Net;
 - detailed analysis of traffic demand.
- (tasks 1,2)

Deliverable 2 – within 8 weeks after signing the contract

2. Detailed technical analysis:

- Infrastructure analysis, classification criteria of public institutions, possible barriers, including commercial, legal, political and regulatory, and priority setting;
 - Phased connection plan of public institutions to G-Net;
- (tasks 3,4,5,6)

Deliverable 3 – within 12 weeks after signing the contract

3. Detailed network design:

- detailed network design including the topology and structure of the network, the choice of technology, the assessment of the terminal equipment required for each connection;
 - cybersecurity issues for each connection;
 - recommendations for all necessary documents.
- (tasks 7,8,9, 10, 11)

Deliverable 4 – within 15 weeks after signing the contract

4. Final report including the approved G-Net expansion plan.

Terms and disbursement schedule:

The contract will be signed for a period of 15 weeks on a Lump Sum basis, during which the contract can be terminated.

The consultant should perform all of the above tasks within 15 weeks from the date of signing the contract, with the payment schedule listed below:

Output	Deadline	Payment
deliverable 1	Signing of contract + 4 weeks	The first payment is 20% of the total value of the contract after submission and approval of the products planned under deliverable 1
deliverable 2	Signing of contract + 8 weeks	The second payment is 30% of the total value of the contract after submission and approval of the products planned under deliverable 2

deliverable 3	Signing of contract + 12 weeks	The third payment is 30% of the total value of the contract after submission and approval of the products planned under deliverable 3
deliverable 4	Signing of contract + 15 weeks	The fourth payment is 20% of the total value of the contract after submission and approval of the products planned under deliverable 4

All products should be confirmed by supporting documents after the approval of SCITC and coordination with the World Bank.

Reporting and Approval Procedures:

The consultant will report to the Technical Coordinator of the Component, PIU Director, Deputy PIU Director, Chairman/Deputy Chairman of the SCITC.

The final report (3 printed copies and 1 electronic copy) should be approved by the Chairman of the SCITC who is coordinating the PIU activities. Reports will be provided in English with translations into Russian.

All project results, reports and documents should be prepared in Russian and English.

Upon completion of each deliverable, the Consultant shall prepare a brief report that will include all documents prepared by the Consultant and a brief description of the activities performed. This report must be approved by the PIU Director and the Deputy chairman of the SCITC KR.

Resources

The SCITC will provide all required support related to provision of technical and other information under this TOR. Workplace and computer equipment are not provided under the contract.

Qualifications and Experience:

The consultant must meet the following qualification, knowledge and skills requirements:

- Higher education in ICT or related fields, with experience in designing telecommunications networks;
- Knowledge of the basic technologies and principles of building converged voice and data communications networks, confirmed by the corresponding certificates;
- Experience in designing and maintenance of ICT networks;
- Experience in developing specifications for ICT networks, at least 3 projects;
- Fluency in English;
- Experience as a technical consultant in projects financed by international organizations (WB, ADB, EBRD, etc.);