

## सिलबन्दी दरभाउपत्रका साथ पेश गर्न पर्ने कागजातहरू

१. VAT/PAN दर्ता प्रमाणित प्रतिलिपि तथा कम्पनी दर्ताको नोटरी पब्लिकबाट प्रमाणित प्रतिलिपि (संस्थाको हकमा) र PAN दर्ता प्रमाणित प्रतिलिपि (व्यक्तिको हकमा)
२. आ.व. २०६७/०६८ को करचुक्ता प्रमाणपत्रको नोटरी पब्लिकबाट प्रमाणित प्रतिलिपि ।
३. आफुले कबोल गरेको रकमको साठे दुई प्रतिशतले हुन आउने रकम प्राधिकरणको Nabil Bank को खाता नं. ०१०६०११६६४२०१ मा नगद दाखिला गरेको भौचर रसिद वा ७५ दिन Validity रहेको बैंक ग्यारेन्टी ।
- ४ सिलबन्दी दरभाउपत्र फाराम दस्तुर रु. ३००।- नगद दाखिला गरेको रसिद ।
५. सिलबन्दी दरभाउपत्र दाखिला गर्नुपर्ने अन्तिम मिति र समय  
२०६८।०३।०१ दिनको ५:०० बजे सम्म ।
६. सिलबन्दी दरभाउपत्र मिति २०६८।०३।०३ गते दिनको १ बजे व्यक्ति तथा संस्थाको आधिकारिक प्रतिनिधिको रोहवरमा खोलिनेछ । उक्त मिति र समयमा आधिकारिक प्रतिनिधि उपस्थित नभएता पनि दरभाउपत्र खोलिनेछ ।
७. सिलबन्दी दरभाउपत्रको मान्य अबधि पैतालिस दिनको हुनेछ ।
८. सिलबन्दी दरभाउपत्र पाइने स्थान : प्रशासन शाखा

नेपाल दुरसञ्चार प्राधिकरण  
त्रिपुरेश्वर, काठमाण्डौ ।

मिति

श्रीमान् अध्यक्ष ज्यू,  
नेपाल दूरसञ्चार प्राधिकरण,  
त्रिपुरेश्वर, काठमाण्डौ ।

विषय : .....संब धमा ।

उपरोक्त सम्बन्धमा त्यस प्राधिकरणको मिति ..... मा प्रकाशित सूचना  
वमोजिम.....विषयको .....सेवा खरिद  
सम्बन्धमा संलग्न वमोजिमले जम्मा रु. .... मा उपलब्ध गराउन मञ्जुर भई  
प्राधिकरणमा धरौटि वापत बुझाएको नगद रु. .... को रसिद वा मिति .....  
सम्म म्याद रहेको रु. .... को बैंक ग्यारेन्टि संलग्न गरी निवेदन पेश गरको छु ।

निवेदक

नाम :

हस्ताक्षर :

फोन नं. :

संस्थाको हकमा छाप :

# Nepal Telecommunications Authority

## Technical Qualification Check-list Form

*System Analysis and Design of Software Modules (QoS, WISP-DB, Type Approval Certificate)*

1. Name of the Main Expert (System Analyst)  
\_\_\_\_\_
2. Highest Educational Qualification of the Expert  
\_\_\_\_\_
3. Stream of the Degree Achieved by the Expert (Computer Science, Computer Engineering, IT).  
\_\_\_\_\_
4. Working Experience of the Expert (Exp. with System Analysis, Design and Testing).  
\_\_\_\_\_ Years \_\_\_\_\_ Month(s)
5. Expert's Knowledge of Programming Languages (like C, C++, Java, CASE Tools...)  
\_\_\_\_\_
6. Main Expert's Proven Experience Documents (list the exp. Certificates if any)  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
7. Any Other professional Certificates (degree) achieved by the experts (please specify if any)  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*Note: Consultant/Consulting Form should provide copy of all the necessary documents mentioned above during proposal submission.*

# **Nepal Telecommunications Authority**

## **Terms of Reference**

### **For System Analysis and Design of:**

A. QoS Data Warehouse (QoS Bank)

B. Who is ISP-DB (WISP-DB)

C. Automatic Type Approval and Certificate Generation

December, 2011

## 1. Background

**‘Quality of Service (QoS)’** is the main indicator of the performance of a telecom network and of the degree to which the network conforms to the stipulated norms and standards specified by the regulator or any other agency designated for the same. The subscriber’s perception of the Quality of Service (QoS) is determined by a number of performance factors (*src: NTA Website*). Operator’s service quality is to be measured timely so as to check whether the service providers are providing the quality service as specified in Service Level Agreement (SLA). It is the role of NTA as a regulating body to measure the approved parameters for evaluating operator’s service quality. Since last year, NTA is carrying out QoS survey and performance test of wire line/wireless network of telecom operators through the independent consultant. It has started to measure the QoS parameters in the main cities of Nepal and in the near future, the activities continue to rural and urban areas of Nepal. The survey and test report as measured by the consultant and submitted to NTA shows that the service quality doesn’t meet the criteria as set forth. In addition with NTA’s self QoS Survey and via independent consultant, NTA collects the QoS parameters from the constituent operators on every quarter of the year for its regulatory purpose. It is necessary to automate the QoS parameters database system which helps NTA for periodic analysis and effective regulation. The main purpose of this document is to facilitate the system analyst by providing summarized guiding principle so as to perform the proper analysis and design for the package development.

**“WHOIS databases”** enable us to search for information about the domain names, people, computers, organizations, and name servers involved with administering the Domain Name Service (DNS). A core set of this data constitutes a unified database view shared by all of the domain name registrars.

*The WHOIS database publicly displays contact information such as the registrant’s name, address, telephone and fax numbers, and e-mail address.*

Currently NTA Type Approve the equipments based on a test report(s) and certificate of conformity issued by the manufacturers and/or by NTA-approved international standardization bodies or regulatory inspection/certifying bodies. For this, NTA adopt the following model for Type Approval process—importing country, Nepal in this case, further verifies the Suppliers’ Declaration of Conformity (SDoC) and/or related standards test reports. Manufacturer either directly contacts NTA requesting for Type Approval on its products, or local VAR and/or representative will apply on behalf of the manufacturer. If the manufacturer does not have a local VAR/representative in Nepal, it still can apply for Type Approval and get certification.

## 2. Objective

Perform Detail System Analysis & Design and submit analysis report to NTA for the development of Software Module:

2.1 “QoS Data Warehouse” (QoS Data Bank)

2.2 Who is ISP Database (WISP-DB)

2.3 Automatic Certificate Generation and database system for Type Approval (TypoCert)

## 3. Design of the software modules

### 3.1 QoS Parameters for Mobile/WLL/Limited Mobility service defined by NTA

To measure the quality of operator’s telecom network, NTA approved QoS parameters for cellular mobile service on 12<sup>th</sup> Ashad 2064. **Quality of Service (QoS)** is the main indicator of the performance of a telecom network and of the degree to which the network conforms to the stipulated norms and standards specified by the regulator or any other agency designated for the same. NTA has specific objectives of defining QoS parameters and its benchmarks, including but not limited to

- a. Ensure consumer satisfaction by making known the quality of service which the service provider is required to provide and the user has a right to expect. Thus, it protects the interests of consumers of telecommunication services.
- b. Measure from time to time the Quality of Service provided by the Service Providers and to compare them with the reference standard so as to assess the level of performance.
- c. Develop telecom technologies and reduce human dependence of the telecom networks and review the QoS parameters periodically for redefining the benchmarks as well as deleting some existing QoS parameters and adding some new parameters based on the merits, world trends and experience.
- d. Make the QoS parameters more comprehensive

The Authority has decided to sub-divide the QoS parameters into following three broad categories (*More details: [www.nta.gov.np](http://www.nta.gov.np)*):

- i. Network Performance
- ii. Billing Complaints and Redressal
- iii. Customer Perception regarding the Service

**The parameters defined under Network Performance are:**

- Service Access Delay
- Call Set-up Success Rate
- Call Drop Ratio
- Point of Interconnection (PoI) Congestion

**Parameters defined under billing complaints:**

- Billing Complaints per 100 bills issued
- Percentage of billing complaints cleared within a month

**Parameters defined under customer perception**

- Percentage of customers satisfied with the network performance, reliability and availability
- Percentage of customers satisfied with the provision of service.
- Percentage of customers satisfied with billing performance.
- Percentage of customers satisfied with the help/enquiry services.
- Percentage of customers satisfied with the maintainability.
- Percentage of customers satisfied with the offered supplementary services
- Overall Customer Satisfaction

3.2 WISP-DB Module includes parameter under the followings

- ISP addresses with contact information details.
- IP distribution information of ISPs and Telcos
- ISP client details

3.3 Type Approval and certificate Certification generation includes the parameters under the followings

- Application forms
- Type approval certificate
- Database for Type approved equipment

#### **4. Scope of Works**

4.1. The scope of works to perform system analysis and design of QoS Data Bank may be listed below:

- i. Perform detail study about the QoS parameters set by NTA for Basic, Internet and Mobile Service ([www.nta.gov.np](http://www.nta.gov.np)).
- ii. Perform requirement analysis with the finalization of the QoS parameters with necessary variables to be entered into the Warehouse Database and required for pattern analysis.
- iii. Perform Data Modeling (level-1) and UML Modeling with Class/Object Diagram.
- iv. Perform Detail System Design for the development of software module incorporating the hardware and software solutions to make the module portable and operable.
- v. Include necessary testing mechanism and any other things whichever deem necessary during analysis and design.
- vi. Submit Report to NTA with necessary recommendations of the warehouse development process which will be the reference document for module developer.

4.2. The scope of works to perform system analysis and design of WISP-DB may be listed below:

- i. Perform detail study of necessary parameters for WISP-DB
- ii. Perform requirement analysis with the finalization of the WISP-DB parameters with necessary variables to be entered into the Database and required for pattern analysis.
- iii. Perform Data Modeling (level-1) and UML Modeling with Class/Object Diagram.
- iv. Perform Detail System Design for the development of software module incorporating the hardware and software solutions to make the module portable and operable.
- v. Include necessary testing mechanism and any other things whichever deem necessary during analysis and design.
- vi. Submit Report to NTA with necessary recommendations of the database development process which will be the reference document for module developer.

4.3 The scope of works to perform system analysis and design of Type Approval and Certification generation may be listed below:

- i. Perform detail study about the Type Approval parameters set by NTA for Type Approval Certification.
- ii. Perform requirement analysis with the finalization of the Type Approval parameters with necessary variables to be entered into the Database, required for pattern analysis and certificate generation.
- iii. Perform Data Modeling (level-1) and UML Modeling with Class/Object Diagram.



- iv. Perform Detail System Design for the development of software module incorporating the hardware and software solutions to make the module portable and operable.
- v. Include necessary testing mechanism and any other things whichever deem necessary during analysis and design.
- vi. Submit Report to NTA with necessary recommendations of the Type Approval Software module development process which will be the reference document for module developer.

## **5. Consultant Requirements**

### **5.1 Qualifications and Experience:**

- The individual consultant or Expert of the Consulting-Firm should have minimum education qualification of Masters Degree in Computer Science/Computer Engineering/IT.
- The Consultant/Consulting-firm has at least three years working experience in similar task.
- The Consultant/Consulting-firm has proven experience in software analysis and design.

## **6 Knowledge and skills**

- The individual consultant or Expert of the Consulting-Firm is expected to have good knowledge of programming language and designing tools
- System Analyst may follow any standard software development lifecycle (like: Waterfall, Spiral, FAST, RAD, JAD, Object oriented approach...) however object oriented approach of analysis and design is preferable. The analysis technique may follow the domain analysis developing the standard with Data Modeling up to **level 1 data flow diagram** with context diagram and UML class/Object diagram.
- Strong communication, documentation and presentation skills.

## **6. Deliverables**

- Submit draft report within 40 days from the date of assignment
- Submit final report within 10 days after receiving feedback by NTA on draft report.

## **7. Budget**

The estimated budget for aforementioned tasks is Rs 300,000.00 inclusive of VAT.