Terms of Reference

Design, Development, Implementation and Support of Jalvidhyut Lagani Tatha Bikas Company Limited (HIDCL) Enterprise Resource Planning (ERP) Solution of HIDCL

Jalvidhyut Lagani Tatha Bikas Company Limited (HIDCL)
Kathmandu
Nepal

1. Introduction

1.1 Jalvidhyut Lagani Tatha Bikas Company Limited (HIDCL)

HIDCL started its operations formally from 11th July 2011 in Kathmandu. It was established to address the unmet power demand, which has resulted in a national power crisis, as a public investment company, of 80% equity, 50% belongs to the Government of Nepal and 30% belongs to three state owned companies namely Karmachari Sanchaya Kosh, Rastriya Beema Sansthan and Citizen Investment Trust. 20% has been set aside for general public called though Initial Public Offering (IPO).

1.2 HIDCL Institutional Arrangement

The company is guided and directed by the board of directors at policy level. In operation level, Chief Executive Director (CEO) is responsible for all execution and decision making for a Company. Three committees, namely, Audit committee, HR & Compensation and Risk Management Committee helps board as and when required with major decision making and control.

Administration and Finance Department lead by Deputy General Manager (Banking) and Project Analysis & Evaluation Department lead by Deputy General Manager (Hydro) work directly under CEO. These two managers are responsible for supervising Administration, Human Resource Development (HRD) and Finance Section and Project Analysis Section respectively. Other 19 staff works under above mentioned two sections in different capacity of the company.

2. Objectives of the assignment

The main objectives of hiring the consultant for this assignment are as follows:

- Development of web enabled integrated Enterprise Resource Planning (ERP) solution for supporting HIDCL regular operations which include Project Management Information System (PMIS), Financial Management Information System (FMIS), Contract Management Information System (CMIS), Procurement Management Information System (PCMIS) and Admin and Human Resource Management Information System (HRMIS).
- Establish and maintain a robust Online, Real-time, Web Based, Database Monitoring System (ORDBMS) that enables to get real time data and statistics available for timely decision, policy making, monitoring and project implementation for the HIDCL related activities and service delivery.
- The ERP solution should integrate all independent software modules that are supporting operation of HIDCL.
- The ERP solution should manage major business processes that include Budgeting, Donor Financing, Project Loan, Investment and Fund Management of HIDCL.
- The HR management system should support operation on Personnel Management (Personal Data, Leave Management, Travel Management, Salary Management, Performance Evaluation),Time Management, Personal Development (Trainings, Performance Evaluation), Document Registration (Darta, Chalani), Document Management System (Store and Search Document, access control), Material Management (Pre Purchase, Post Purchase, Inventory), Payroll and Tax calculation.
- Strengthen the monitoring capacity of the company based on different projects for proper decision making support to top managers.

- Modernize and strengthen the e-Governance system by implementing online web based HIDCL ERP at central level for HIDCL and department/divisions under the HIDCL.
- Build a sound networking system, data collection mechanism, work flow system, monitoring and reporting mechanism between Central HIDCL office and districts project units.
- Knowledge management for the employees involved in the information management system.

3. Scope of the Service

The consultant needs to conduct and carryout the following activities to achieve the objectives and produce the deliverables and outputs. In this context scope of services of this consulting service consists (but not limited to) of the following:

3.1. Study the objectives of HIDCL, its activities, Projects, Financing, Donors etc define /determine the monitoring and progress performance activities as per the Institutional functions, Monitoring Indicators and Norms etc: The consultant need to understand thoroughly the business process of HIDCL at operational level and its activities inside and outside, Monitoring Procedures, Data collection formats/form, reporting process, Different Norms of Regulation etc. Based on the study, the consultant needs to develop and deliver an ERP system that facilitates online processing of data of projects, finance, donors, monitoring, and periodic progress of loan and repayments.

3.2. Consultation with the concerned authorities of the HIDCL: The consultant should consult with the concerned officials/ divisional chief of HIDCL after signing the agreement. The consultant needs to have consultative meetings with the technical team of HIDCL for the time schedule, planning and other implementation.

3.3 HIDCL Input: HIDCL will assign a staff as project coordinator of the developing software project who will communicate with the Consultant for various inputs. Under the identification of the necessity of the Consulting firm, HIDCL can allocate a certain space and environment within a HIDCL office for consulting personnel to carry out developing activities if required. In development of the ERP, consulting firm will get support from the concerned divisional personnel on required input, clarity and expected result from a particular module and integration.

3.4. Design and Development of Management Information System: After determining the appropriate forms, formats and information the consultant needs to design and develop the (HIDCLMIS) for the required information to cater the needs for monitoring, administration and reporting of the HIDCL project and related activities. The HIDCLMIS should be able to produce and maintain the volume, storage and speed for instant online data entry, recording, retrieving, producing and analyzing the data and its contents. However, the system should have the following features and must satisfy the system requirements. The HIDCLMIS and its operation need to have the following features:

- **A web-based System:** The MIS developed by the consultants should run smoothly in all web browsers with equal performance. The system should accommodate all the web-based system features. The users should be able to make entry in the forms or formats developed for information capture from the concerned offices and institutions such as HIDCL office and Districts Project unit office well.
- **Data Forms, Formats and Related Information:** The consultant need to determine the data contents, forms, formats and other information system after analyzing all the requirements of the HIDCL with the technical team as well as concerned division officers. However, as general guideline it may contain the following:

  Project Related Information: HIDCL has investment on 11 hydro projects in Nepal having calculated total capacity of 458.1 MW on completion, which promised the financing of NRs. 438.6 billion under the company alone. The ERP should keep track of all project related information and generate the required result if needed. The projects related information should be filled by the projects if necessary. Proper mechanism of data entry request and response should be managed well enough to run the system efficiently. The security, data verification and approval system is required.

  Financial Information: All financial cost of the projects should be monitored well such as project cost, investment and contribution from various agencies, donors, community contribution, loan sanctioned and installment released as well as financial progress of each project. The system should generate various required financial report like vouchers, balance sheet, reconciliation statement, trial balance, ledgers and other standard financial reports proposed by HIDCL during inception period. The system should also track all the office financial activities too, like travel cost, vehicle hire, staff salaries, tax deduction, etc. Consultant should consult with finance department of HIDCL for financial related information.

  HIDCL HR and Admin related Information: The ERP should have modules/functionalities to track HR related information like staff personal information, qualifications, training related information and more. Consultant should consult with HIDCL HR division to determine required information, input format as well as reporting formats.

  Project Evaluation and Analysis: The Project Analysis and Evaluation Module of the proposed system will simplify these activities and assist in handling all reports and document, correspondence related to the hydropower projects and the information related to investment decisions. The main activity of the Project Evaluation and Analysis Department and the Project Analysis Section within it is to assist in making investment decisions by carrying out appraisal of projects that have approached the Company for investment. The ERP should facilitate project evaluation and produce analysis report based on indicators selected and set during the entire process of project start and end.

- **Data Entry or Uploading Functions:** The ERP should have both features of data entry online as well as uploading filled form where necessary which will be identified during the system analysis phase. It should also ensure the adequate safety/security mechanism while making entry or uploading the forms, formats or other required information. This system should also

contain the sample forms or formats which can be downloaded and filled offline and uploaded to the system, populating the concern database tables.

- **Access Control:** The ERP system should have different access control features as per user levels and user privileges or user roles. This access control feature should be dynamic in nature so that rights of a particular module may be assigned to any user apart from his/her level.
- **Parameterization:** The ERP software system should be dynamic to adopt the parameters as defined in related acts, rules, directives etc. This will facilitate any update in parameters like interest rates, project types, numbers, training types, and holidays etc. in future.
- **Audit Trail System:** The ERP system should have the facility of Audit Trail. The system should be able to examine the periodic information on real time basis. It should generate the report required by the authorities to test the accuracy of the data and the system should able to produce reliable information. The audit trail system should be inbuilt in the system.
- **Maker and Checker System:** While making entry or uploading the data entry and feeding the forms or formats the system should have the facility of maker and checker as separate authority. The check and balance through the maker and checker system need to be the integral part of the software.
- **GEA/NGIF Compliance:** The system should follow Nepal Government Enterprise Architecture (GEA) and Nepal Government Interoperability Framework (GIF). Compliance of these features by any government software system will facilitate the data interchange among different government agencies. System should support Nepali Unicode as well as English/Nepali dates. System should have Nepali User Interface where required and can be switched with a single click of a button at any level of its operation.
- **Security:** The ERP needs to be secured through layers of security system. The software security system should enable the smooth operation of the system without hacking or other security lacking. The system should have an integral security system. The security features should include the following:

  Coding level security- security issue should be taken into account while coding.

  Access level security: various session monitoring/tracking, password encryption, etc.

  Database level security: access to database and their roles, read/write permission, access to database, session monitoring, etc.

  Network level security: access of system inside/outside HIDCL, IP and port filtering, etc.

- **Data Storage and Back-up System:** The consultant should be able to identify and recommend to HIDCL for proper data storage mechanism including necessary hardware change required to support software services efficiently.
- **Disaster Recovery System (DRS):** The consultant should also suggest the DRS for the database safety and possible loss from natural disaster as well. It needs to include the DRS plan and the client needs to take a *precautionary and correcting mechanism* under disaster occurrence. It also should contain the *alternative solutions* for DRS, if any.
- **Data Export System:** The database system should be able to export the data to other application program such as SPSS and STATA, Excel or other useful application programs for analysis and generation of analytical report as and when required.
- **Data Analysis/Graph generation Program:** The database need to be developed based on the financial and operational fields from the entered data that is necessary to carry-out any analysis.

It should also be able to calculate and analyses the indicators from the data and indicator content, percentage and cut offs values, average and able to generate various analysis charts/graphs wherever required.

- **System Integration:** The designed system should fully integrate or compatible with other HIDCL existing system for easy data synchronization and auto data update among the various systems. In addition to this, HIDCL is organizing its operational data in several distributed and desktop applications which run and support core business activities independently. Though the MIS software run independently, they have several linkages with one another for supporting another program/component. The web based ERP solution will have to integrate all software systems, enhance the MIS capability and eliminate the existing loopholes by increasing the security system.
- **Data Migration and Transfer:** HIDCL currently uses few independent software systems to support operation of the company and Financial and Accounting System for keeping track of financial related data. The consultant should successfully transfer data from the old system to the newly designed system using proper migration plan. If the migration does not succeed, the consultant should produce convincing evidence of data migration failure and submit a report to HIDCL.
- **Network Analysis and Network System Development:** The consultant should analyze available network technology in HIDCL and suggest with appropriate action to be taken in order to run the system well in intranet, internet and WAN.
- **Support and Maintenance:** After successful implementation of ERP solution and Project Completion Report accepted by HIDCL, the system should be kept under warranty period for three months. On completion of warranty period, the system will stay under maintenance period for two additional years where a regular support, maintenance and regular updates should be carried out by the consulting firm. HIDCL will have to pay the consultant for the annual maintenance of ERP. The support level depends upon the complexity of the task which should determine the service should either be remote support, on call support or stationed support.

4. Methodology

The consultant shall follow one of the agile methodologies of software development. The rapid module development is expected to create iterations with the users and continuous feedback helps the delivery faster. The best part of this methodology is short time boxes, known as iterations, which happen to last from one week to one month.

5. Training and knowledge transfer

The consultant shall prepare the technical, user and operational training module, training materials and session plans for the successful design, development and operation of the system. The trainings should be conducted for HIDCL staff as well as selected project staff. The training shall be organized by HIDCL and facilitated by the developing firm and events shall be conducted under the discussion of HIDCL and consulting firm.

5. Output/Deliverables

After carrying out the scope of activities, the consultant should handover the following output and deliverables to the HIDCL:

- **Original ERP Software Design and System /Program** to run the ERP in HIDCL. Documents of the Software program in hard copies and that of electronic version (in Compact Disk and Pen Drive).
- **Data Entry Formats, Forms and Other Required Information:** The consultant also need to prepare and submit the manual or directives for the forms, formats for its effective handling.
- **Documentation of Technical Design, Operational and Training Manuals**: As mentioned in the scope of the activities the consultant needs to submit the **Technical Design of the Software System, Operational and Training Manuals** in the documented form as well as the in Soft copy of electronic version (in Compact Disk and Pen Drive).
- **System Requirement Specification (SRS):** A complete report of standard SRS including database architecture and ERP design.
- **The Source Code and right to use by client** exclusively.
- The **copyright** necessary to use the software and used the one developed by others, if any.
- The conduction of **trainings** and **workshops, seminars** and **consultative meetings** and their reports.
- The reporting requirements as mentioned in the ToR.

SN	Deliverables	Date	Remarks
1	Inception Report	Not later than 1 month of agreement signing	
2	System Requirement Specification (SRS) Report	Not later than 3 months of inception report submitted	
3	System Design Document (SDD) and Test Report	Not later than 4 months of SRS submitted	
5	Other deliverables mentioned in 5	Not later than 1 months of User Acceptance	

6. Qualification and work experience

6.1 Qualification and experience of the firm:

i. 10 years of documented experience of system software design and web based applications design, development and implementation of similar projects types for corporate business, investment companies, banks, government, NGOs, INGOs and similar others.
ii. Must have an experience of at least 5 web based ERP/MIS/DSS projects development in last 10 years of worth at least 50 lacs each.
iii. Having documented evidence of average financial turnover of at least 80 lacs annually for last three years.
iv. Other relevant documents like company registration, VAT registration, latest tax clearance, etc. are necessary.

6.2 Professional Staff and key Person Involvement

Description		Person Man- Months	
1. Key Professionals	**No.**	**Input**	**Total**
1.1 Project Manager (Team Leader)	1	9	9
1.2 System Analyst	1	5	5
1.3 Network Engineer	1	1	1
1.4 Database Administrator	2	5	10
1.5 Programmer/Developer	3	9	27
1.6 Hydro Electricity Development Engineer	1	2	2
2. Other Support Staffs			
2.1. Admin Expert	1	5	5
2.2. Finance/ Account Expert	1	5	5
2.3 Helper/ Loader	1	9	9

1.1 Project Manager (Team Leader)

Role	Overall project management
Qualification	At least Master's Degree in the field of IT/Software/IS/Engineering or equivalent
Experience:	At least 7 years of experience in web based ERP/MIS/DSS solution development/implementation and management. Should have specific experience as Project Manager (Team Leader) in at least three project related to ERP/MIS/DSS/database management, etc. within last five years. Should have the trainings and certification related to IT/Project Management. PMP/ITIL training is preferred.

1.2 System Analyst System Analysis/ Design

Role	System Analysis and Design
Qualification	At least Master's degree in IT/Software/IS/Engineering or equivalent
Experience:	Minimum 5 years of experience in system reengineering/module integration/analysis/designing and system development. Should have experience in designing database of ERP/MIS/DSS using MS SQL Server, CSPro (Census/Statistics), JAVA/PHP/.Net. Preference will be given on the basis of experience gained on web based application analysis/design and successfully in operation till the date.

	Should have training/certificate on system analysis/designing.

1.3 Programmers/Developers

Role	Programming and Coding
Qualification	At least bachelor's degree in IT/Software/IS/Engineering or equivalent
Experience:	Minimum 5 years of experience in computer programming, preferably having experience in development of data management system, MS SQL Server, CSPro, JAVA, PHP, .Net. The programmers must have demonstrated experience of developing web based applications. Should have training/certificates on software development. Preference will be given to the training/certificate on web-based programming, database management and statistical tools.

1.4 Database Administrator/Database design

Role	Database Design, Development and Management
Qualification	At least bachelor's degree in Computer/IT Engineering or related field
Experience:	Minimum 5 years of experience in database administration preferably having experience in MS SQL Server. The Database Administrator must have demonstrated experience of design, development, implement and maintenance of databases including data recovery, security, scalability and disaster recovery. Should have training/certification in database administration.

1.5 Network Engineer

Role	Network, Security Design and Implementation
Qualification	At least Master’s degree in Computer/IT Engineering or related field
Experience:	Minimum 5 years of experience in network designing/development, preferably having experience in designing/development of network system of web based data management systems. Having network

	design related certificates will be added advantages.

1.6 Hydro Electricity Development Engineer

Role	Hydro Electricity related expert opinions and guidelines
Qualification	At least Master's degree in Hydro Engineering
Experience:	Minimum 7 years of experience in Hydro project development. Should have training/certificate related to Hydro power development or directly involved as a trainer on the field of Hydro Electricity. Should have knowledge and working experience on Hydro power investment, planning, designing, development, implementation and maintenance.

2.1 Admin Expert

Role	Administrative procedures and standard workflow management
Qualification	At least Master's degree in Business Administration or equivalent
Experience:	Minimum 7 years of experience in handling administration of corporate business, investment companies, banks and large scale private companies. Should have training/certificate related to administration management and proven skill of transferring knowledge into software instructions.

2.1 Finance/Account Expert

Role	Financial and Accounting work flow management
Qualification	At least Master's degree in Business Administration/ Finance or equivalent
Experience:	Minimum 7 years of experience in handling Finance and Account of corporate business, investment companies, banks and large scale private companies. Should have training/certificate related to financial management and proven skill of transferring knowledge into software instructions.

7. Method of Selection

The consulting firm selection method shall be Quality Cost Based Selection (QCBS) as per the guideline of Government of Nepal.

8. Schedule of Time Frame

The consulting firm should complete all the tasks, obligations, presentations and reporting within 9 months from the date of signing the Contract Agreement. The assignment tasks are supposed to be performed as per the schedule estimated in Annex II.