

# **EXPRESSION OF INTEREST (EOI)**

**Title of Consulting Service: Integrated Metric Addressing System and Mobile APP for public support in Tokha Municipality**

**Method of Consulting Service: National**

**Project Name : Integrated Metric Addressing System and Mobile APP for public support in Tokha Municipality**

**EOI : 01/NCB/TM/C/2080-81**

**Office Name: Tokha Municipality, Office of the Municipal Executive**

**Office Address: Maijuhity, Kathmandu Tokha Kathmandu**

**Funding agency : Internal Resources**





**Tokha Municipality**  
**Office of the Municipal Executive**  
Maijughity, Kathmandu



**Request for Expression of Interest**

Publication Date: Bhadra 31, 2080

EOI No.: 01/NCB/TM/C/2080-81

**Integrated Metric Addressing System and Mobile App for Public Support in Tokha Municipality**

1. **Tokha Municipality, Kathmandu** has allocated fund toward the development of the **Integrated Metric Addressing System and Mobile App for public support** and intend to apply a portion of this fund to eligible payments under the Contract for which this Expression of Interest is invited for National consulting service
2. The **Tokha Municipality, Kathmandu** now invites Expression of Interest (EOI) from eligible consulting firms ("consultant") to provide the following consulting services: **Integrated Metric Addressing System and Mobile App for public support**.
3. Interested eligible consultants may obtain further information and EOI document free of cost at the address **Tokha Municipality, Maijughity, Kathmandu** during office hours on or before opening time or visit e-GP system [www.bolpatra.gov.np/egp](http://www.bolpatra.gov.np/egp) or visit the client's website <https://www.tokhamun.gov.np/ne>.
4. Consultants may associate with other consultants to enhance their qualifications.
5. Expressions of interest shall be delivered online through the e-GP system [www.bolpatra.gov.np/egp](http://www.bolpatra.gov.np/egp) and apply through e-procurement on or before **Asoj 15, 2080 12:00 noon**. EOI will be opened at 14:00 hours on the same day of last submission day in the presence of the consultant or their representatives who chose to attend.
6. In case the last date of obtaining and submission of the EOI documents happens to be a holiday, the next working day will be deemed as the due date, but the time will be the same as stipulated.
7. EOI will be assessed based on **Qualification 40.0%, Experience 40.0%, and Capacity 20.0%** of consulting firms and key personnel. Based on the evaluation of EOI, only shortlisted firms will be invited to submit technical and financial proposals through a request for proposal.
8. The consultant will be selected in accordance with QCBS methos specified in the PPA/R.
9. Minimum score to pass the EOI is **60%**.
10. Eligible consultant can contact Information Technology and Archive Management Section for further information.

## Abbreviations

CV	-	Curriculum Vitae
DO	-	Development Partner
EA	-	Executive Agency
EOI	-	Expression of Interest
GON	-	Government of Nepal
PAN	-	Permanent Account Number
PPA	-	Public Procurement Act
PPR	-	Public Procurement Regulation
TOR	-	Terms of Reference
VAT	-	Value Added Tax
EBPS	-	Electronic Building Permit System
TM	-	Tokha Municipality

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## **A. Request for Expression of Interest**

# Request for Expression of Interest

## Government of Nepal (GoN)

Name of Employer: Tokha Municipality, Office of the Municipal Executive

Date: 17-09-2023 21:00

Name of Project: Integrated Metric Addressing System and Mobile APP for public support in Tokha Municipality

1. Government of Nepal (GoN) has allocated fund toward the cost of Integrated Metric Addressing System and Mobile APP for public support in Tokha Municipality and intend to apply portion of this fund to eligible payments under the Contract for which this Expression of Interest is invited for National consulting service
2. The Tokha Municipality, Office of the Municipal Executive now invites Expression of Interest (EOI) from eligible consulting firms ("consultant") to provide the following consulting services: Preparation of Metric Address System; Web GIS System; Mobile App; Basemap, Disaster related IT system, integration of GIS with Revenue, EBPS and disaster
3. Interested eligible consultants may obtain further information and EOI document free of cost at the address Tokha Municipality, Office of the Municipal Executive, <https://www.bolpatra.gov.np/egp/> during office hours on or before 02-10-2023 12:00 or visit e-GP system [www.bolpatra.gov.np/egp](http://www.bolpatra.gov.np/egp) or visit the client's website <https://tokhamun.gov.np/ne>
4. Consultants may associate with other consultants to enhance their qualifications.
5. Expressions of interest shall be delivered online through e-GP system [www.bolpatra.gov.np/egp](http://www.bolpatra.gov.np/egp) <https://tokhamun.gov.np/ne> Tokha Municipality, Office of the Municipal Executive  
Maijughity, Kathmandu  
Tokha, Kathmandu  
Bagmati Province  
Nepal on or before 02-10-2023 12:00
6. In case the last date of obtaining and submission of the EOI documents happens to be a holiday, the next working day will be deemed as the due date but the time will be the same as stipulated.
7. EOI will be assessed based on Qualification 40.0 %, Experience 40.0 %, and Capacity 20.0 % of consulting firm and key personnel. Based on evaluation of EOI, only shortlisted firms will be invited to submit technical and financial proposal through a request for proposal.
8. Minimum score to pass the EOI is 60

## **B. Instructions for Submission of Expression of Interest**



# Instructions for Submission of Expression of Interest

1. Expression of Interest may be submitted by a sole firm or a joint venture of consulting firms and the maximum number of partners in JV shall be limited to three.
2. Interested consultants must provide information indicating that they are qualified to perform the services (descriptions, organization and employee and of the firm or company, description of assignments of similar nature completed in the last 7 years and their location, experience in similar conditions, general qualifications and the key personnel to be involved in the proposed assignment).
3. This expression of interest is open to all eligible consulting firm/company/ organization.
4. In case, the applicant is individual consultant, details of similar assignment experience, their location in the previous 4 years and audited balance sheet and bio data shall be considered for evaluation.
5. The assignment has been scheduled for a period of 12 months. Expected date of commencement of the assignment is 30-11-2023.
6. A Consultant will be selected in accordance with the QCBS method.
7. Expression of Interest should contain following information:
  - (i) A covering letter addressed to the representative of the client on the official letter head of company duly signed by authorized signatory.
  - (ii) Applicants shall provide the following information in the respective formats given in the EOI document:
    - EOI Form: Letter of Application (Form 1)
    - EOI Form: Applicant's Information (Form 2)
    - EOI Form: Work Experience Details (Form 3(A), 3(B) & 3(C))
    - EOI Form: Capacity Details (Form 4)
    - EOI Form: Key Experts List (form 5).
8. Applicants may submit additional information with their application but shortlisting will be based on the evaluation of information requested and included in the formats provided in the EOI document.
9. The Expression of Interest (EOI) document must be duly completed and submitted by electronically only using the forms and instructions provided by the system.
10. The completed EOI document must be submitted on or before the date and address mentioned in the "Request for Expression of Interest". In case the submission falls on public holiday the submission can be made on the next working day. Any EOI Document received after the closing time for submission of proposals shall not be considered for evaluation.

## **C. Objective of Consultancy Services or Brief TOR**

## C. Objective of Consultancy Services or Brief TOR

### Integrated Metric Addressing System and Mobile App for Public Support in Tokha Municipality

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## 1. Background

Tokha Municipality is a rapidly urbanizing municipality located on the Northern side of Kathmandu Valley in Kathmandu District in Bagmati Province of Nepal. This Municipality was formed by merging the former Village development committees Dhapasi, Jhor Mahankal, Gongabu, Tokha Chandeshwari, and Tokha Saraswati. The Study Area includes all the 11 wards of Tokha Municipality and buffer zone surrounded by Kathmandu Metropolitan City, Budhanilkantha Municipality, Tarakeshwor Municipality and Shivapuri National Park to be addressed with a unique identifier.

Tokha Municipality has been undergoing rapid urbanization, leading to a dense concentration of households. However, this growth has brought forth several challenges, particularly in the absence of a comprehensive street naming and household addressing system. Navigating through the municipality on a daily basis becomes difficult for residents and service providers alike, hindering the efficient delivery of services by both private and non-government organizations down to the individual household level. The lack of a standardized addressing system poses obstacles to various essential functions, such as postal delivery, product distribution, utility management, emergency response systems like taxis, ambulances, and fire brigades, municipal service activities, and even the implementation of an effective tax collection system. Therefore, it is imperative to develop a robust street naming and household addressing system that can provide unique and precise locations for buildings and homes, enabling government authorities, commercial delivery personnel, and the general public to easily locate any address within the municipality.

Tokha Municipality encompasses a diverse range of structures and transportation modes, with significant population centers and various utility services. These services necessitate a well-organized pattern of land use and connectivity. To ensure efficient functioning and accessibility, the municipality must establish a comprehensive addressing mechanism for buildings. By doing so, the municipality can streamline processes, enhance service delivery, and create a more convenient living environment for its residents. Implementing a proper street naming and household addressing system will not only facilitate day-to-day operations but also boost economic activities, foster public safety, and improve the overall quality of life in Tokha. As the municipality progresses into a modern urban center, addressing this fundamental requirement becomes crucial to harness its full potential and ensure a sustainable and thriving community for all.

## 2. Significance of Work

This project once completed will benefit different stakeholders in multiple different ways. The most significant works are GIS Metric Addressing System with preparation of Basemap, integrated Municipal Database, road inventory database (MTMP based); GIS embedded disaster, revenue, EBPS and other service delivery modules attached mobile (both Android and IOS) and web app with the following is the brief summary:

### (i) Municipality Officials and Elected Government Representatives:

- Data-Driven Development Planning: Utilize updated datasets for roads and buildings to make informed decisions about urban development and infrastructure projects.
- Utilities Management and Services Allocation: Identify each household individually for better management of utilities and service allocation.





- **Tax Revenue Collection:** Easily track buildings with different revenue statuses, leading to improved tax collection.
- **Infrastructure Development Prioritization:** Identify areas with low connectivity for effective infrastructure planning.
- **Administrative Service Delivery:** Streamline local government service delivery with rigid address systems.
- **Resource Allocation and Fund Management:** Identify disaster-vulnerable communities for better resource allocation and fund management.
- **Automated Addressing System:** Save expenses by **automatically generating household numbers** during building permit issuance after a new building is built within the Municipal area.
- **Integrate house mapping with EBPS**
- **Integration with IoT Devices:** Integrate with IoT devices for improved infrastructure monitoring and maintenance.

#### (ii) Online Business and Service Providers:

- **Access to Accurate Data:** Access reliable and up-to-date information about households and roads for business planning and service provision.
- **Efficient Service Delivery:** Enhance service delivery by using precise address data to reach customers and clients effectively.

#### (iii) Citizens:

- **Makes the day-to-day Navigation** around the Municipality easier for citizens with accurate data about all roads and access routes.
- **Citizen Issue Identification:** Use household-level data to identify and address citizen issues and problems effectively.

#### (iv) Emergency Responders

- **Rapid and Precise Location Identification:** The system provides unique and accurate addresses for individual households and roads, enabling emergency responders to quickly and precisely locate those in need during emergencies and disasters.
- **Efficient Resource Allocation:** With the system's ability to identify disaster-vulnerable communities and critical regions, emergency response providers can allocate resources more efficiently, directing aid where it is most needed.
- **Real-time Route Identification:** The system offers real-time route identification to individual citizens, allowing emergency responders to navigate the most efficient paths to reach those requiring assistance promptly.
- **Improved Disaster Preparedness:** Access to up-to-date datasets on roads, buildings, and infrastructure aids disaster management officials in better preparedness planning and response capacity building.
- **Enhanced Coordination:** The system facilitates better coordination among various emergency response teams and agencies by providing a unified addressing system.

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- **Risk Assessment:** Disaster management officials can use the system's data to conduct detailed risk assessments, identifying areas prone to specific hazards and planning mitigation strategies accordingly.
- **Timely Situational Analysis:** The accurate inventory of roads and buildings allows for timely situational analysis, enabling a faster and more effective response to disasters.
- **Seamless Collaboration:** The system's integration with IoT devices allows for seamless collaboration with sensor-based technologies for real-time monitoring and data sharing during emergencies.
- **Data-Driven Decision Making:** The availability of data-driven insights helps emergency response providers and disaster management officials make informed decisions during crisis situations, leading to better outcomes.
- **By leveraging the GIS-based metric street naming and house addressing system,** emergency response providers and disaster management officials can enhance their capabilities in handling emergencies and ensuring the safety and well-being of citizens during critical times.

#### (iv) Other Government Agencies:

- **Road and Infrastructure Planning:** Access updated road inventory data for better planning of road updates, maintenance, and expansions.
- **Institutional Data Inventory:** Utilize accurate datasets on educational facilities, health facilities, government institutions, etc., for planning and decision-making purposes.
- **Good Governance:** Provide advice to the government based on geodata to prioritize activities related to good governance and accelerate municipal service delivery transparently.

### 3. Objective

The objective of this project is to develop and implement a Web GIS-Based Street Naming and Household Addressing System supported by accurate and up-to-date Household and Road Inventory generated using Drone Imagery. The system aims to empower the Municipality with data-driven planning and decision-making capabilities, enabling efficient urban development, utilities management, tax revenue collection, disaster management, emergency response, EBPS and overall improved administrative service delivery

The sub objectives of this project are as follows:

- Prepare a high resolution Integrated Municipal Geodatabase and Urban Base Map with Drone based Orthophoto map as a background of Tokha Municipality.
- Develop an accurate and up-to-date database of roads and individual buildings to support data-driven development planning and decision making by the Municipality.
- Establish a unique household identification system to aid in utilities management and efficient allocation of services for residents.
- Implement an automated metric addressing system to streamline the tax revenue collection process and improve tracking of buildings with different revenue statuses with embed in EBPS.

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- Design and develop a robust web-based metric-based addressing system that adheres to international best practices and standards.
- Develop accurate data inventory of the Municipality and link it to household level emergency planning and disaster management activities

#### 4. Scope of the Service

The scope of work for the consulting services encompasses the following key areas, although it may be further refined during the project initiation phase

##### a) Need Assessment Study

- Conduct a project kickoff meeting with key stakeholders, including Municipality officials and community representatives.
- Conduct stakeholder consultations with key municipal officials, community leaders, and service providers to understand their specific addressing needs and challenges.
- Analyze existing data and records related to roads, buildings, and households in Tokha Municipality to identify gaps and deficiencies in the current data recording keeping system/process.
- Conduct a survey among residents to gather their feedback, preferences, and suggestions regarding the addressing system.
- Assess the technological infrastructure and capacity of the Municipality to determine the feasibility and requirements for implementing a digital addressing system.
- Prepare a comprehensive Inception report including findings from the need assessment along with a detailed work plan, findings, recommendations, and proposed solutions.

##### b) Design and Develop a Digital System (Mobile App):

- Engage with software developers and user experience designers to conceptualize and design the mobile app.
- Develop a detailed requirements specification document for the metric addressing system, considering international best practices, standards, and local requirements.
- Develop the mobile app with the following features:
  - Map-based navigation, search functionality, and unique household identification.
  - User Management: The app should have different login for individual households as well as the Municipal officials (ward chairperson/focal person, IT officers and overall system administrator)
- Integrate the mobile app with the municipal geodatabase to access and display relevant address-related information.
- Test the mobile app extensively, gathering feedback from users for iterative improvements and bug fixing.
- Establish data integration protocols to seamlessly connect the addressing system with existing digital mapping platforms.
- Design and develop a Mobile App with following features:
  - Map-Based Navigation: Users can navigate using a map interface with zoom and pan functionality.





- Search Functionality: Users can search for specific addresses or locations by name, address, or criteria.
- Routing Functionality: Provides directions and routes to user addresses and selected locations.
- Map Layer Switching: Users can switch between multiple basemaps and access high-resolution satellite imagery.
- Location Sharing: Users can share their location and address with other users.
- Disaster Alert Notifications and Awareness Messaging during emergency utilizing the geofencing.
- User Management: Separate logins for individual households and municipal officials, such as ward chairpersons, IT officers, and system administrators.
- Cross-Platform Compatibility: The application works on both iOS and Android devices.
- Multi-Lingual Support: Supports both Nepali and English languages for a broader user base.
- Nearby Essential Services: Provides information on nearby hospitals, schools, banks, and government offices.
- Custom Markers/Annotations: Users can add custom markers or annotations on the map to mark points of interest or favorite locations.
- Develop messaging functionality so that the public can interact with the officials from the municipality.

**c) Design and Develop a Digital System (Web Application):**

- Engage with software developers and user experience designers to conceptualize and design the web-based addressing system.
- Develop a detailed requirements specification document for the metric addressing system, considering international best practices, standards, and local requirements.
- Design the database architecture, data model, and user interface of the mobile based system ensuring scalability, accuracy, and ease of use.
- **Develop a Web GIS application with following functionalities:**
  - Upload spatial and attribute datasets for each building.
  - Upload, update and manage the Road Network datasets.
  - Add buildings and auto-generate house numbers in case of new buildings.
  - A digital module in the existing data portal to update the house numbering so that the Municipality themselves would be able to update the household number whenever required.
  - View all household and institution dataset in an interactive map and the overlay functionality with drone images used for house numbering. Accurate household location over drone images shall be overlaid in a map.
  - Overlay other WMS layers from Geoserver and map servers through WMS Capabilities in a map.
  - Overlay other available layers like, education, health, public offices, religious places, and other layers.
  - A functionality to measure area and length in a map

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- A functionality to update the vector layer styles and labels in a map as per the municipal need.
- A functionality to export the map as an image map format with option to dynamically change the size of map, map grid, scale, legend, title and description, etc.
- A functionality to filter the geographic datasets by attribute query where municipal officials should be able to write advanced attribute queries on their own and show the results in a map.
- Geographic query module with filter by polygon, geographical area.
- Proximity analysis functionality for nearest facilities
- Shortest path from user location to the buildings and facilities in both web and mobile applications.
- Allow the municipality to upload any other layers in different formats like geojson, shapefile, csv etc. Also allow to style all the layers as per need along with label style management.
- Allow the municipality to export the layers in different formats like geojson, csv, shapefile, kml etc. Also allow municipality to download filtered datasets (attribute and geographically filtered)
- Implement attribute addition along with attribute management functionality allowing to assign as mandatory field, dropdown field or image field.
- Implement geometry and attribute edit functionality for building and road including all overlay layers like school, health, public facilities along with attribute.
- Implement a 3D map of terrain along with building height based on the floor counts.
- Optimize performance of the system for fast loading of large sized map-based datasets
- Develop an open API for public information so that other government and service-based systems operating inside the municipality can benefit from it.
- Conduct rigorous testing and quality assurance to ensure the accuracy and functionality of the system.

**d) Conduct Drone Based Aerial Survey, Data Processing and GIS Based Mapping**

- Secure necessary permissions for Drone Survey over the entire municipality area.
- Setup Ground Control Points (GCPs) in such a way that it is properly distributed across the entire Municipality area.
- Conduct Drone based surveys and capture high resolution images.
- Process and analyze the collected aerial imagery to create high-resolution Orthophoto Maps, Digital Elevation Model, Contour maps and other topographical outputs.
- Conduct ground truthing and field surveys to validate the accuracy of the final outputs.
- Digitize the high-resolution base maps and create an accurate inventory of roads, buildings, landmarks and other facilities, infrastructures etc.

**e) Conduct Household Survey using Mobile based data collection tools**

- Finalize a list of questions for the household level data collection purpose in close consultation with the Municipal officials.

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- Identify and train local youths from each ward on mobile based data collection in order to collect household level datasets.
- Mobilize the local youths to collect accurate datasets for all individual households and validate the total coverage of work in consultation with the ward officials.
- Engage a relevant expert to ensure the spatial as well as attribute accuracy of each point data collected.
- The Study Area includes all the 11 wards of Tokha Municipality and buffer zone surrounded by Kathmandu Metropolitan City, Budhanilkantha Municipality, Tarakeshwor Municipality and Shivapuri National Park.

**f) Preparation of Inventory of existing Road datasets**

- Collect existing road datasets from relevant departments within the Municipality and other government organizations outside.
- Digitize all road network datasets from the Drone based Orthophoto maps, organize in person workshops at each ward and create detailed and accurate Inventory of all roads along with the name of the roads. The list of roads needs to be approved by each respective ward.
- Consolidate the collected datasets into a single comprehensive inventory, ensuring data accuracy and consistency.
- Conduct a thorough quality check and validation of the road datasets to identify any discrepancies or missing information.
- Prepare a detailed road inventory, including road names, classifications, lengths, and other relevant attributes.

**g) Preparation of Integrated Municipal Geodatabase and Basemap**

- Design the architecture and data model for the integrated municipal geodatabase.
- Integrate the collected data from the drone-based aerial survey, household survey, and existing road datasets into the geodatabase.
- Establish data linkages and relationships to ensure seamless data integration and retrieval between different modules of the addressing system.
- Implement data validation and quality assurance procedures to maintain the accuracy and reliability of the geodatabase
- Prepare Basemap of the municipality.

**h) Map Literacy, Sensitization and Participatory Mapping for data validation**

- Conduct map literacy workshops and training sessions for municipal staff, local youths, and community members to build their understanding of maps and the addressing system.
- Organize participatory mapping exercises involving the community to validate and update the geospatial data, focusing on landmarks, facilities, and other spatial information.
- Sensitize residents about the benefits and usage of the new addressing system to ensure active participation and cooperation.

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**i) Coordinate and support in number plates installation at each individual household/ street**

- Develop a systematic plan and guidelines for installing unique number plates at visible and accessible locations on each building/street
- Coordinate with households to schedule the installation, ensuring proper alignment with the addressing system.
- Assign unique house numbers to each household and update the geodatabase with the assigned numbers.
- Monitor the installation progress and address any issues or discrepancies as needed together with support from the Municipality.

**j) Final Report, System handover and Update Plan**

- Prepare a comprehensive final report summarizing the entire project, including methodologies, findings, and recommendations.
- Present the final report to the Municipality, highlighting the achievements and benefits of the new addressing system.
- Conduct training sessions for municipal staff on the maintenance, update procedures, and proper usage of the digital addressing system.
- Hand over all project deliverables, including the mobile app, web application, geodatabase, and related documentation, to the Municipality for long-term use and management.
- In order to deal with potential threats and breaches, the system should be VAPT certified.
- Develop an update and scaling plan outlining the process for future data collection, system enhancements, and periodic maintenance of the addressing system to ensure its sustainability and effectiveness.

**Note:** The consultant should consult with the concerned officials of the Tokha Municipality after signing the agreement in order to understand the Municipal requirements and also to ensure that all activities are conducted as per the need and expectations from the Municipality office. The consultant is liable to develop the system according to the needs of the Tokha Municipality and has to provide a demo of the system to the officials of the Tokha Municipality as per when asked. Besides, the consultants must ensure the following activities:

1. They have to visit all ward offices and organize interaction sessions together with ward officials and citizens to understand their needs and also sensitize them about the benefits of the addressing system. Also, they need to consult with ward officials for the finalization of standard names for toles, roads and streets.
2. Household surveys should be done by going in each household and a form should be filled up in a given format.
3. The consultant team needs to prepare a summarized version of their work progress in a maximum 2 pages standard format report every 15 days to the Municipality office.

**5. Methodology**

The suggested approach for this assignment is the 'agile development' model, which aims at evolving, improving, delivering, and supporting services based on Municipality's needs, feedback, and experience. This is to ensure that the software functionality is customized to meet the demands of the Municipality. The following minimum approach is thus suggested:





- Conduct a comprehensive analysis to understand the needs, challenges faced and functional and non-functional requirements of the Municipality.
- Discussions with Tokha Municipality's relevant departments, experts and other relevant GoN/Institutions.
- Review the relevant documents of Tokha Municipality for the establishment of the Metric Addressing System.
- Coordinate with the Municipality authority and if necessary, with other government agencies to conduct a Municipality level Drone survey for acquisition of high-resolution datasets.
- Create a system design document for the Metric Addressing System (both mobile and web application) in line with the requirements.
- Develop a Beta Version of the Metric Addressing System based on the approved system design document for testing. Conduct system testing and user acceptance testing and follow up on fixing incidents.
- Prepare training plan/course according to training requirement for municipality staff, including developing a standard user manual for products and solution modules in English as well as in Nepali language. In addition to this, consultants are liable to develop the procedural step in Nepali language.
- Provide training of trainers for Municipality's team, proposed 4-5-day training for end users and another 7-day training on system administration
- Validate deliverables and produce an online technical support system for debugging and ensuring smooth system administration for a period of one year after the system is delivered to Municipality.
- Coordinate, cooperate and support to install the household number plates for each house and streets in close coordination with plate installer and homeowners/community.
- Discuss/present the demo of the Metric Addressing System.

##### 5. Technical Details of House Number and Street signage plate

The specification of house number and street signage plate will be determined after finalizing actual no. of houses and road inventory.

##### 6. Output/ Deliverables

After carrying out the scope of activities, the consultant should hand over the following output and deliverables to Tokha Municipality.

SN	DELIVERABLES	TIME
<b>Main consulting work: (9 months)</b>		
1	Inception Report Revised timeline, Findings from the need assessment study and detailed requirement listing	20 days from work order
2	A standard SRS including relevant system-related	1 months

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Majhuti, Kathmandu  
Bagmati Province, Nepal  
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	documentation along with Graphical Mockups for both Mobile and Web Application	
3	Mobile Application	2 months
4	Household Survey	3 months
5	Orthophoto map from drone Based High Resolution Aerial Survey	2 months
6	Integrated Municipal Geodatabase	2 months
7	Data Validation Workshops at all wards	1 months
8	Web GIS Based Municipal Addressing System with automatic house number generation with drone orthophoto as a base layer.	1 months
9	Training to Municipal Officials on how to use the system after the project period and keep it updated	Last month
12	Sustainability Plan including details regarding linking the system with the existing business process of the Municipality	After nameplate installation
13	Final Report and system user manual with source code and VAPT and system will be hosted in the server environment provided by Tokha Municipality	After nameplate installation
<b>Coordination work: (3 month)</b>		
9	Number Plate Installation	Upto 12 <sup>th</sup> month


Note: The consultancy work will be for 9 months and the coordination work for 3 months for number plate installation. The coordination budget for consultancy service is under this service.

#### 7. Submission of reports and presentation of the works

Following report shall submit in time as mentioned below:

No of installments	Time period	Payment in %	Report submitted by the consultant
First	At the end of 1st month of date of agreement	20%	Inception Report of overview of the project, outlining its objectives, scope, timeline, and resources required, 3 set hard copies and 1 set soft copy with advance payment guarantee.
Second	At the end of fourth month of date of agreement	40%	Field Report/ Draft Report of Drone based aerial survey, data processing and GIS based mapping and Beta mobile application and web application, 3 set hard copies and 1 set soft copy

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Tokha Municipality  
Office of the Municipality  
Majhuti, Kathmandu  
Bagmati Province, Nepal  
2073

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## **D. Evaluation of Consultant's EOI Application**

# Evaluation of Consultant's EOI Application

Consultant's EOI application which meets the eligibility criteria will be ranked on the basis of the Ranking Criteria.

## i) Eligibility & Completeness Test

Sl. No.	Criteria Title	Compliance
1	Corporate Registration	
2	Tax Clearance/Tax Return Submission	
3	VAT/PAN Registration	
4	EOI Form 1: Letter of Application	
5	EOI Form 2: Applicant's Information Form	
6	EOI Form 3: Experience (3(A) and 3(B))	
7	EOI Form 4: Capacity	
8	EOI Form 5: Qualification of Key Experts	
9	In case of a natural person or firm/institution/company which is already declared blacklisted and ineligible by the GoN, any other new or existing firm/institution/company owned partially or fully by such Natural person or Owner or Board of director of blacklisted firm/institution/company; shall not be eligible consultant.	
10	If the corruption case is being filed to Court against the Natural Person or Board of Director of the firm/institution /company or any partner of JV, such Natural Person or Board of Director of the firm/institution /company or any partner of JV shall not be eligible to participate in procurement process till the concerned Court has not issued the decision of clearance against the Corruption Charges.	

## ii) EOI Evaluation Criteria

### A. Qualification

Sl. No.	Criteria	Minimum Requirement
1	Team Leader	a) Education: Master Degree in Informatics /Digital Development /GeoInformatics/ Urban Planning / or related field b) General Experience: At least 7 years of experience c) Specific Experience: 1. Should have led and completed on Drones and Web GIS Based House Numbering projects 2. Should have led and completed the design and development of Rural/Municipal level profile preparation
2	Urban Planning Expert	a) Education: Master Degree in Urban Planning /Urban Design or related field b) General Experience: At least 5 years of experience c) Specific Experience: 1. Experience on completed Drones and Web GIS Based House Numbering projects 2. Should have completed Integrated urban planning and development related projects
3	GIS Expert	a) Education: Bachelor Degree in Geomatics/Geoinformatics or related field b) General Experience: At least 5 years of experience c) Specific Experience: 1. Experience on completed Web GIS Based House Numbering projects 2. Experience in design and development of GIS Based data collection, mapping and visualization in at least 2 projects



Sl. No.	Criteria	Minimum Requirement
		(completed)
4	Drone Mapping Expert	a) Education: Bachelor Degree in Geomatics/Geoinformatics or related field b) General Experience: At least 4 years of experience c) Specific Experience: Should have completed at least two Drones based projects.
5	Cyber Security Specialists	a) Education: Bachelor degree in Networking and Security / Cyber Security or related field b) General Experience: At least 4 years of experience c) Specific Experience: Experience in protecting digital systems, networks, and data from unauthorized access, breaches, and cyber threats in or security audited at least two projects for both (completed)
6	Sr. Software Developer	a) Education: Bachelor in ICT or Computer Engineering or related field b) General Experience: At least 4 years of experience c) Specific Experience: Experience in Design and development of digital software consisting of both web and mobile application in at least 2 projects (completed).

**Score: 40.0**

#### **B. Experience**

Sl. No.	Criteria	Minimum Requirement
1	General Experience of consulting firm	a) At least 3 no. of completed projects, each project with above 20 lakhs (single or JV) b) Completed at least one Web GIS based data collection/mapping/ management/ visualization systems/projects for Government entities
2	Specific experience of consulting firm within last 7 years. In case of person, specific experience of the person within last 4 years.	a) Completed mobile app incorporating GIS b) Successfully completed in Drones Based House Numbering of Rural/Municipalities c) GIS based Emergency Planning and Disaster Information Management System that can generate Household Level Disaster Profile d) Aerial surveying using drone technology or helicopter

**Score: 40.0**

#### **C. Capacity**

Sl. No.	Criteria	Minimum Requirement
1	Financial Capacity.[Average turnover required shall not exceed 150% of cost estimate]	Average annual turnover of best 3 years of the last 7 fiscal years: 21.5 million (Twenty One point five Million rupees)
2	Infrastructure/equipment related to the proposed assignment.[This Evaluation criteria should be deleted if infrastructure/equipment are not the part of the proposed assignment]	a) Hybrid Model drones that can be operated in dense urban Environments with at least one Hybrid drone b) Powerful processing CPU device for large amounts of drone image processing with at least 64GB RAM, 8GB graphics card and 500GB SSD

**Score: 20.0**

**Minimum score to pass the EOI is: 60**



**Minimum score to pass the EOI is: 60**

Note : If the corruption case is being filed to Court against the Natural Person or Board of Director of the firm/institution /company or any partner of JV, such Natural Person or Board of Director of the firm/institution /company or any partner of JV such consultant's proposal shall be excluded during the evaluation.

## **E. EOI Forms & Formats**

## **E. EOI Forms & Formats**

Form 1. Letter of Application

Form 2. Applicant's information

Form 3. Experience (*General, Specific and Geographical*)

Form 4. Capacity

Form 5. Qualification of Key Experts

## Standard EOI Document

### 1. Letter of Application

(Letterhead paper of the Applicant or partner responsible for a joint venture, including full postal address, telephone no., fax and email address)

Date: .....

To,

Full Name of Client: \_\_\_\_\_

Full Address of Client: \_\_\_\_\_

Telephone No.: \_\_\_\_\_

Fax No.: \_\_\_\_\_

Email Address: \_\_\_\_\_

Sir/Madam,

1. Being duly authorized to represent and act on behalf of (hereinafter "the Applicant"), and having reviewed and fully understood all the short-listing information provided, the undersigned hereby apply to be short-listed by **[Insert name of Client]** as Consultant for **[Insert brief description of Work/Services]**.
2. Attached to this letter are photocopies of original documents defining:
  - a) the Applicant's legal status;
  - b) the principal place of business;
3. **[Insert name of Client]** and its authorized representatives are hereby authorized to verify the statements, documents, and information submitted in connection with this application. This Letter of Application will also serve as authorization to any individual or authorized representative of any institution referred to in the supporting information, to provide such information deemed necessary and requested by yourselves to verify statements and information provided in this application, or with regard to the resources, experience, and competence of the Applicant.
4. **[Insert name of Client]** and its authorized representatives are authorized to contact any of the signatories to this letter for any further information.<sup>1</sup>
5. All further communication concerning this Application should be addressed to the following person,  
  
[Person]  
  
[Company]  
  
[Address]  
  
[Phone, Fax, Email]
6. We declare that, we have no conflict of interest in the proposed procurement proceedings and we have not been punished for an offense relating to the concerned profession or

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<sup>1</sup> Applications by joint ventures should provide on a separate sheet, relevant information for each party to the Application.

***Standard EOI Document***

business and our Company/firm has not been declared ineligible.

7. We further confirm that, if any of our experts is engaged to prepare the TOR for any ensuing assignment resulting from our work product under this assignment, our firm, JV member or sub-consultant, and the expert(s) will be disqualified from short-listing and participation in the assignment.
8. The undersigned declares that the statements made and the information provided in the duly completed application are complete, true and correct in every detail.

**Signed** :

**Name** :

**For and on behalf of (name of Applicant or partner of a joint venture):**

**Standard EOI Document**

**2. Applicant's Information Form**

*(In case of joint venture of two or more firms to be filled separately for each constituent member)*

1. Name of Firm/Company:
2. Type of Constitution (*Partnership/ Pvt. Ltd/Public Ltd/ Public Sector/ NGO*)
3. Date of Registration / Commencement of Business (*Please specify*):
4. Country of Registration:
5. Registered Office/Place of Business:
6. Telephone No; Fax No; E-Mail Address
7. Name of Authorized Contact Person / Designation/ Address/Telephone:
8. Name of Authorized Local Agent /Address/Telephone:
9. Consultant's Organization:
10. Total number of staff:
11. Number of regular professional staff:

*(Provide Company Profile with description of the background and organization of the Consultant and, if applicable, for each joint venture partner for this assignment.)*

**Standard EOI Document**

**3. Experience**

**3(A). General Work Experience**

*(Details of assignments undertaken. Each consultant or member of a JV must fill in this form.)*

<b>S. N.</b>	<b>Name of assignment</b>	<b>Location</b>	<b>Value of Contract</b>	<b>Year Completed</b>	<b>Client</b>	<b>Description of work carried out</b>
1.						
2.						
3.						
4.						
5.						
6.						
7.						

**Standard EOI Document**

**3(B). Specific Experience**

**Details of similar assignments undertaken in the previous seven years**

*(In case of joint venture of two or more firms to be filled separately for each constituent member)*

Assignment name:	Approx. value of the contract (in current NRs; US\$ or Euro) <sup>2</sup> :
Country:  Location within country:	Duration of assignment (months):
Name of Client:	Total No. of person-months of the assignment:
Address:	Approx. value of the services provided by your firm under the contract (in current NRs; US\$ or Euro):
Start date (month/year):  Completion date (month/year):	No. of professional person-months provided by the joint venture partners or the Sub-Consultants:
Name of joint venture partner or sub-Consultants, if any:	Narrative description of Project:
Description of actual services provided in the assignment:  <b>Note: Provide highlight on similar services provided by the consultant as required by the EOI assignment.</b>	

Firm's Name: \_\_\_\_\_

<sup>2</sup> Consultant should state value in the currency as mentioned in the contract



**Standard EOI Document**

**3(C). Geographic Experience**

**Experience of working in similar geographic region or country**

*(In case of joint venture of two or more firms to be filled separately for each constituent member)*

<b>No</b>	<b><i>Name of the Project</i></b>	<b><i>Location (Country/ Region)</i></b>	<b><i>Execution Year and Duration</i></b>
<b>1.</b>			
<b>2.</b>			
<b>3.</b>			
<b>4.</b>			
<b>5.</b>			
<b>6.</b>			
<b>7.</b>			

**Standard EOI Document**

**4. Capacity**

**4(A). Financial Capacity**

*(In case of joint venture of two or more firms to be filled separately for each constituent member)*

Annual Turnover	
Year	Amount Currency

- Average Annual Turnover

--

*(Note: Supporting documents for Average Turnover should be submitted for the above.)*

**Standard EOI Document**

**4(B). Infrastructure/equipment related to the proposed assignment<sup>3</sup>**

<b>No</b>	<b>Infrastructure/equipment Required</b>	<b>Requirements Description</b>
<b>1.</b>		
<b>2.</b>		
<b>3.</b>		
<b>4.</b>		
<b>5.</b>		

---

<sup>3</sup> Delete this table if infrastructure/equipment for the proposed assignment is not required.

**Standard EOI Document**

**5. Key Experts** *(Include details of Key Experts only)*

*(In case of joint venture of two or more firms to be filled separately for each constituent member)*

<b>SN</b>	<b>Name</b>	<b>Position</b>	<b>Highest Qualification</b>	<b>Work Experience (in year)</b>	<b>Specific Work Experience (in year)</b>	<b>Nationality</b>
1						
2						
3						
4						
5						

(Please insert more rows as necessary)



# **Standard Expression of Interest (EOI) Document for Shortlisting of Consultants and Consulting Services**

## **Procurement of Consulting Services (For National and International Consulting Services)**

### **Issued By:**

Public Procurement Monitoring Office  
Tahachal, Kathmandu

**March 2017**

**(First Revision May, 2018)**

**(Second Revision May, 2019)**

**(Third Revision June, 2019)**

**(Forth Revision December, 2022)**

## **PREFACE**

1. This Standard Expression of Interest (EOI) document has been prepared by Public Procurement Monitoring Office of Government of Nepal (GoN) for the use by its implementing agencies including the procurement entities of Government Ministries, Departments, Authorities and Government owned corporate bodies for short listing of Consulting Firms for recruitment of consultants. The EOI document can be used for short listing of consultants for Quality and Cost-Based Selection (QCBS), Quality-Based Selection (QBS), Fixed Budget Based Selection (FBS), Least Cost Selection (LCS) and Consultant's Qualification Selection (CQS).
2. This Preface and notes provided for the procurement entity in this EOI document should be deleted.
3. EOI evaluation weightage range given in this document should be deleted and assignment specific weightage within the given the range should be provided while issuing the EOI document.

# EXPRESSION OF INTEREST (EOI)

Integrated Metric Addressing System and Mobile App  
for public support  
in  
Tokha Municipality

## Method of Consulting Service

**Project Name** : Integrated Metric Addressing System and Mobile  
APP for public support in Tokha Municipality

**EOI/Notice no.** : **01/NCB/TM/C/2080-81**

**Office Name** : Tokha Municipality

**Office Address** : Maijuhity, Kathmandu

**Issued on** : **Bhadra 31, 2080**



## Abbreviations

CV	-	Curriculum Vitae
DO	-	Development Partner
EA	-	Executive Agency
EOI	-	Expression of Interest
GON	-	Government of Nepal
PAN	-	Permanent Account Number
PPA	-	Public Procurement Act
PPR	-	Public Procurement Regulation
TOR	-	Terms of Reference
VAT	-	Value Added Tax
EBPS	-	Electronic Building Permit System
TM	-	Tokha Municipality



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## **B. Instructions for submission of Expression of Interest**

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2. Applicant's Information Form
3. Experience
4. Capacity
5. Key Experts (Include details of Key Experts only)

## **A. Request for Expression of Interest**





**Tokha Municipality**  
**Office of the Municipal Executive**  
Maijughity, Kathmandu



**Request for Expression of Interest**

Publication Date: Bhadra 31, 2080

EOI No.: 01/NCB/TM/C/2080-81

**Integrated Metric Addressing System and Mobile App for Public Support in Tokha Municipality**

1. **Tokha Municipality, Kathmandu** has allocated fund toward the development of the **Integrated Metric Addressing System and Mobile App for public support** and intend to apply a portion of this fund to eligible payments under the Contract for which this Expression of Interest is invited for National consulting service
2. The **Tokha Municipality, Kathmandu** now invites Expression of Interest (EOI) from eligible consulting firms ("consultant") to provide the following consulting services: **Integrated Metric Addressing System and Mobile App for public support**.
3. Interested eligible consultants may obtain further information and EOI document free of cost at the address **Tokha Municipality, Maijughity, Kathmandu** during office hours on or before opening time or visit e-GP system [www.bolpatra.gov.np/egp](http://www.bolpatra.gov.np/egp) or visit the client's website <https://www.tokhamun.gov.np/ne>.
4. Consultants may associate with other consultants to enhance their qualifications.
5. Expressions of interest shall be delivered online through the e-GP system [www.bolpatra.gov.np/egp](http://www.bolpatra.gov.np/egp) and apply through e-procurement on or before **Asoj 15, 2080; 12:00 noon**. EOI will be opened at 14:00 hours on the same day of last submission day in the presence of the consultant or their representatives who chose to attend.
6. In case the last date of obtaining and submission of the EOI documents happens to be a holiday, the next working day will be deemed as the due date, but the time will be the same as stipulated.
7. EOI will be assessed based on **Qualification 40.0%, Experience 40.0%, and Capacity 20.0%** of consulting firms and key personnel. Based on the evaluation of EOI, only shortlisted firms will be invited to submit technical and financial proposals through a request for proposal.
8. The consultant will be selected in accordance with QCBS methos specified in the PPA/R.
9. Minimum score to pass the EOI is **60%**.
10. Eligible consultant can contact Information Technology and Archive Management Section for further information.

## B. Instructions for submission of Expression of Interest

Expression of Interest may be submitted by a sole firm or a joint venture of consulting firms and the maximum number of partners in a JV shall be limited to three.

1. Interested consultants must provide information indicating that they are qualified to perform the services (*descriptions, organization and employee and of the firm or company, description of assignments of similar nature completed in the last 7 years and their location, experience in similar conditions, general qualifications and the key personnel to be involved in the proposed assignment*).
2. This expression of interest is open to all eligible consulting firms/persons/companies/organizations.
3. In case, the applicant is an individual consultant, details of similar assignment experience, their location in the previous 4 years and audited balance sheet and bio data shall be considered for evaluation.<sup>1</sup>
4. The assignment has been scheduled for a period of **9 months for consultancy services and 3 months for number plate installation**. The expected date of commencement of the assignment is **Mangsir, 2080**.
5. A Consultant will be selected by the **QCBS** method.
6. Expression of Interest should contain the following information:
  - (i) A covering letter addressed to the representative of the client on the official letterhead of the company duly signed by an authorized signatory.
  - (ii) Applicants shall provide the following information in the respective formats given in the EOI document:
    - EOI Form: Letter of Application (Form 1)
    - EOI Form: Applicant's Information (Form 2)
    - EOI Form: Work Experience Details (Form 3(A), 3(B) & 3(C))
    - EOI Form: Capacity Details (Form 4)
    - EOI Form: Key Experts List (form 5).
7. Applicants may submit additional information with their application, but shortlisting will be based on the evaluation of information requested and included in the formats provided in the EOI document.
8. The Expression of Interest (EOI) document must be duly completed and submitted in a sealed envelope and should be clearly marked as "EOI Application for Short-listing for Metric Addressing System of Tokha Municipality. The Envelope should also clearly indicate the name and address of the Applicant. Alternatively, applicants can submit their EOI application through the e-GP system by using the forms and instructions provided by the system.
9. The completed EOI document must be submitted on or before the date and address mentioned in the **"Request for Expression of Interest."** In case the submission falls on public holiday the submission can be made on the next working day. Any EOI Document received after the closing time for submission of proposals shall not be considered for evaluation.

## **C. Objective of Consultancy Services or Brief TOR**

### **Integrated Metric Addressing System and Mobile App for Public Support in Tokha Municipality**

## 1. Background

Tokha Municipality is a rapidly urbanizing municipality located on the Northern side of Kathmandu Valley in Kathmandu District in Bagmati Province of Nepal. This Municipality was formed by merging the former Village development committees Dhapasi, Jhor Mahankal, Gongabu, Tokha Chandeshwari, and Tokha Saraswati. The Study Area includes all the 11 wards of Tokha Municipality and buffer zone surrounded by Kathmandu Metropolitan City, Budhanilkantha Municipality, Tarakeshwor Municipality and Shivapuri National Park to be addressed with a unique identifier.

Tokha Municipality has been undergoing rapid urbanization, leading to a dense concentration of households. However, this growth has brought forth several challenges, particularly in the absence of a comprehensive street naming and household addressing system. Navigating through the municipality on a daily basis becomes difficult for residents and service providers alike, hindering the efficient delivery of services by both private and non-government organizations down to the individual household level. The lack of a standardized addressing system poses obstacles to various essential functions, such as postal delivery, product distribution, utility management, emergency response systems like taxis, ambulances, and fire brigades, municipal service activities, and even the implementation of an effective tax collection system. Therefore, it is imperative to develop a robust street naming and household addressing system that can provide unique and precise locations for buildings and homes, enabling government authorities, commercial delivery personnel, and the general public to easily locate any address within the municipality.

Tokha Municipality encompasses a diverse range of structures and transportation modes, with significant population centers and various utility services. These services necessitate a well-organized pattern of land use and connectivity. To ensure efficient functioning and accessibility, the municipality must establish a comprehensive addressing mechanism for buildings. By doing so, the municipality can streamline processes, enhance service delivery, and create a more convenient living environment for its residents. Implementing a proper street naming and household addressing system will not only facilitate day-to-day operations but also boost economic activities, foster public safety, and improve the overall quality of life in Tokha. As the municipality progresses into a modern urban center, addressing this fundamental requirement becomes crucial to harness its full potential and ensure a sustainable and thriving community for all.

## 2. Significance of Work

This project once completed will benefit different stakeholders in multiple different ways. The most significant works are GIS Metric Addressing System with preparation of Basemap, integrated Municipal Database, road inventory database (MTMP based); GIS embedded disaster, revenue, EBPS and other service delivery modules attached mobile (both Android and IOS) and web app with the following is the brief summary:

### (i) Municipality Officials and Elected Government Representatives:

- Data-Driven Development Planning: Utilize updated datasets for roads and buildings to make informed decisions about urban development and infrastructure projects.
- Utilities Management and Services Allocation: Identify each household individually for better management of utilities and service allocation.

- Tax Revenue Collection: Easily track buildings with different revenue statuses, leading to improved tax collection.
- Infrastructure Development Prioritization: Identify areas with low connectivity for effective infrastructure planning.
- Administrative Service Delivery: Streamline local government service delivery with rigid address systems.
- Resource Allocation and Fund Management: Identify disaster-vulnerable communities for better resource allocation and fund management.
- Automated Addressing System: Save expenses by **automatically generating household** numbers during building permit issuance after a new building is built within the Municipal area.
- Integrate house mapping with EBPS
- Integration with IoT Devices: Integrate with IoT devices for improved infrastructure monitoring and maintenance.

**(ii) Online Business and Service Providers:**

- Access to Accurate Data: Access reliable and up-to-date information about households and roads for business planning and service provision.
- Efficient Service Delivery: Enhance service delivery by using precise address data to reach customers and clients effectively.

**(iii) Citizens:**

- Makes the day-to-day Navigation around the Municipality easier for citizens with accurate data about all roads and access routes.
- Citizen Issue Identification: Use household-level data to identify and address citizen issues and problems effectively.

**(iv) Emergency Responders**

- Rapid and Precise Location Identification: The system provides unique and accurate addresses for individual households and roads, enabling emergency responders to quickly and precisely locate those in need during emergencies and disasters.
- Efficient Resource Allocation: With the system's ability to identify disaster-vulnerable communities and critical regions, emergency response providers can allocate resources more efficiently, directing aid where it is most needed.
- Real-time Route Identification: The system offers real-time route identification to individual citizens, allowing emergency responders to navigate the most efficient paths to reach those requiring assistance promptly.
- Improved Disaster Preparedness: Access to up-to-date datasets on roads, buildings, and infrastructure aids disaster management officials in better preparedness planning and response capacity building.
- Enhanced Coordination: The system facilitates better coordination among various emergency response teams and agencies by providing a unified addressing system.
- Risk Assessment: Disaster management officials can use the system's data to conduct detailed risk assessments, identifying areas prone to specific hazards and planning mitigation strategies accordingly.

- **Timely Situational Analysis:** The accurate inventory of roads and buildings allows for timely situational analysis, enabling a faster and more effective response to disasters.
- **Seamless Collaboration:** The system's integration with IoT devices allows for seamless collaboration with sensor-based technologies for real-time monitoring and data sharing during emergencies.
- **Data-Driven Decision Making:** The availability of data-driven insights helps emergency response providers and disaster management officials make informed decisions during crisis situations, leading to better outcomes.
- **By leveraging the GIS-based metric street naming and house addressing system,** emergency response providers and disaster management officials can enhance their capabilities in handling emergencies and ensuring the safety and well-being of citizens during critical times.

**(iv) Other Government Agencies:**

- **Road and Infrastructure Planning:** Access updated road inventory data for better planning of road updates, maintenance, and expansions.
- **Institutional Data Inventory:** Utilize accurate datasets on educational facilities, health facilities, government institutions, etc., for planning and decision-making purposes.
- **Good Governance:** Provide advice to the government based on geodata to prioritize activities related to good governance and accelerate municipal service delivery transparently.

### **3. Objective**

The objective of this project is to develop and implement a Web GIS-Based Street Naming and Household Addressing System supported by accurate and up-to-date Household and Road Inventory generated using Drone Imagery. The system aims to empower the Municipality with data-driven planning and decision-making capabilities, enabling efficient urban development, utilities management, tax revenue collection, disaster management, emergency response, EBPS and overall improved administrative service delivery

**The sub objectives of this project are as follows:**

- Prepare a high resolution Integrated Municipal Geodatabase and Urban Base Map with Drone based Orthophoto map as a background of Tokha Municipality.
- Develop an accurate and up-to-date database of roads and individual buildings to support data-driven development planning and decision making by the Municipality.
- Establish a unique household identification system to aid in utilities management and efficient allocation of services for residents.
- Implement an automated metric addressing system to streamline the tax revenue collection process and improve tracking of buildings with different revenue statuses with embed in EBPS.
- Design and develop a robust web-based metric-based addressing system that adheres to international best practices and standards.
- Develop accurate data inventory of the Municipality and link it to household level emergency planning and disaster management activities

#### 4. Scope of the Service

The scope of work for the consulting services encompasses the following key areas, although it may be further refined during the project initiation phase

##### a) Need Assessment Study

- Conduct a project kickoff meeting with key stakeholders, including Municipality officials and community representatives.
- Conduct stakeholder consultations with key municipal officials, community leaders, and service providers to understand their specific addressing needs and challenges.
- Analyze existing data and records related to roads, buildings, and households in Tokha Municipality to identify gaps and deficiencies in the current data recording keeping system/process.
- Conduct a survey among residents to gather their feedback, preferences, and suggestions regarding the addressing system.
- Assess the technological infrastructure and capacity of the Municipality to determine the feasibility and requirements for implementing a digital addressing system.
- Prepare a comprehensive Inception report including findings from the need assessment along with a detailed work plan, findings, recommendations, and proposed solutions.

##### b) Design and Develop a Digital System (Mobile App):

- Engage with software developers and user experience designers to conceptualize and design the mobile app.
- Develop a detailed requirements specification document for the metric addressing system, considering international best practices, standards, and local requirements.
- Develop the mobile app with the following features:
  - Map-based navigation, search functionality, and unique household identification.
  - User Management: The app should have different login for individual households as well as the Municipal officials (ward chairperson/focal person , IT officers and overall system administrator)
- Integrate the mobile app with the municipal geodatabase to access and display relevant address-related information.
- Test the mobile app extensively, gathering feedback from users for iterative improvements and bug fixing.
- Establish data integration protocols to seamlessly connect the addressing system with existing digital mapping platforms.
- Design and develop a Mobile App with following features:
  - Map-Based Navigation: Users can navigate using a map interface with zoom and pan functionality.
  - Search Functionality: Users can search for specific addresses or locations by name, address, or criteria.
  - Routing Functionality: Provides directions and routes to user addresses and selected locations.
  - Map Layer Switching: Users can switch between multiple basemaps and access high-resolution satellite imagery.



- Location Sharing: Users can share their location and address with other users.
- Disaster Alert Notifications and Awareness Messaging during emergency utilizing the geofencing.
- User Management: Separate logins for individual households and municipal officials, such as ward chairpersons, IT officers, and system administrators.
- Cross-Platform Compatibility: The application works on both iOS and Android devices.
- Multi-Lingual Support: Supports both Nepali and English languages for a broader user base.
- Nearby Essential Services: Provides information on nearby hospitals, schools, banks, and government offices.
- Custom Markers/Annotations: Users can add custom markers or annotations on the map to mark points of interest or favorite locations.
- Develop messaging functionality so that the public can interact with the officials from the municipality.

**c) Design and Develop a Digital System (Web Application):**

- Engage with software developers and user experience designers to conceptualize and design the web-based addressing system.
- Develop a detailed requirements specification document for the metric addressing system, considering international best practices, standards, and local requirements.
- Design the database architecture, data model, and user interface of the mobile based system ensuring scalability, accuracy, and ease of use.
- **Develop a Web GIS application with following functionalities:**
  - Upload spatial and attribute datasets for each building.
  - Upload, update and manage the Road Network datasets.
  - Add buildings and auto-generate house numbers in case of new buildings.
  - A digital module in the existing data portal to update the house numbering so that the Municipality themselves would be able to update the household number whenever required.
  - View all household and institution dataset in an interactive map and the overlay functionality with drone images used for house numbering. Accurate household location over drone images shall be overlaid in a map.
  - Overlay other WMS layers from Geoserver and map servers through WMS Capabilities in a map.
  - Overlay other available layers like, education, health, public offices, religious places, and other layers.
  - A functionality to measure area and length in a map
  - A functionality to update the vector layer styles and labels in a map as per the municipal need.
  - A functionality to export the map as an image map format with option to dynamically change the size of map, map grid, scale, legend, title and description, etc.
  - A functionality to filter the geographic datasets by attribute query where municipal officials should be able to write advanced attribute queries on their own and show the results in a map.

- Geographic query module with filter by polygon, geographical area.
- Proximity analysis functionality for nearest facilities
- Shortest path from user location to the buildings and facilities in both web and mobile applications.
- Allow the municipality to upload any other layers in different formats like geojson, shapefile, csv etc. Also allow to style all the layers as per need along with label style management.
- Allow the municipality to export the layers in different formats like geojson, csv, shapefile, kml etc. Also allow municipality to download filtered datasets (attribute and geographically filtered)
- Implement attribute addition along with attribute management functionality allowing to assign as mandatory field, dropdown field or image field.
- Implement geometry and attribute edit functionality for building and road including all overlay layers like school, health, public facilities along with attribute.
- Implement a 3D map of terrain along with building height based on the floor counts.
- Optimize performance of the system for fast loading of large sized map-based datasets
- Develop an open API for public information so that other government and service-based systems operating inside the municipality can benefit from it.
- Conduct rigorous testing and quality assurance to ensure the accuracy and functionality of the system.

**d) Conduct Drone Based Aerial Survey, Data Processing and GIS Based Mapping**

- Secure necessary permissions for Drone Survey over the entire municipality area.
- Setup Ground Control Points (GCPs) in such a way that it is properly distributed across the entire Municipality area.
- Conduct Drone based surveys and capture high resolution images.
- Process and analyze the collected aerial imagery to create high-resolution Orthophoto Maps, Digital Elevation Model, Contour maps and other topographical outputs.
- Conduct ground truthing and field surveys to validate the accuracy of the final outputs.
- Digitize the high-resolution base maps and create an accurate inventory of roads, buildings, landmarks and other facilities, infrastructures etc.

**e) Conduct Household Survey using Mobile based data collection tools**

- Finalize a list of questions for the household level data collection purpose in close consultation with the Municipal officials.
- Identify and train local youths from each ward on mobile based data collection in order to collect household level datasets.
- Mobilize the local youths to collect accurate datasets for all individual households and validate the total coverage of work in consultation with the ward officials.
- Engage a relevant expert to ensure the spatial as well as attribute accuracy of each point data collected.
- The Study Area includes all the 11 wards of Tokha Municipality and buffer zone surrounded by Kathmandu Metropolitan City, Budhanilkantha Municipality, Tarakeshwor Municipality and Shivapuri National Park.

**f) Preparation of Inventory of existing Road datasets**

- Collect existing road datasets from relevant departments within the Municipality and other government organizations outside.
- Digitize all road network datasets from the Drone based Orthophoto maps, organize in person workshops at each ward and create detailed and accurate Inventory of all roads along with the name of the roads. The list of roads needs to be approved by each respective ward.
- Consolidate the collected datasets into a single comprehensive inventory, ensuring data accuracy and consistency.
- Conduct a thorough quality check and validation of the road datasets to identify any discrepancies or missing information.
- Prepare a detailed road inventory, including road names, classifications, lengths, and other relevant attributes.

**g) Preparation of Integrated Municipal Geodatabase and Basemap**

- Design the architecture and data model for the integrated municipal geodatabase.
- Integrate the collected data from the drone-based aerial survey, household survey, and existing road datasets into the geodatabase.
- Establish data linkages and relationships to ensure seamless data integration and retrieval between different modules of the addressing system.
- Implement data validation and quality assurance procedures to maintain the accuracy and reliability of the geodatabase
- Prepare Basemap of the municipality.

**h) Map Literacy, Sensitization and Participatory Mapping for data validation**

- Conduct map literacy workshops and training sessions for municipal staff, local youths, and community members to build their understanding of maps and the addressing system.
- Organize participatory mapping exercises involving the community to validate and update the geospatial data, focusing on landmarks, facilities, and other spatial information.
- Sensitize residents about the benefits and usage of the new addressing system to ensure active participation and cooperation.

**i) Coordinate and support in number plates installation at each individual household/ street**

- Develop a systematic plan and guidelines for installing unique number plates at visible and accessible locations on each building/street
- Coordinate with households to schedule the installation, ensuring proper alignment with the addressing system.
- Assign unique house numbers to each household and update the geodatabase with the assigned numbers.
- Monitor the installation progress and address any issues or discrepancies as needed together with support from the Municipality.

**j) Final Report, System handover and Update Plan**



- Prepare a comprehensive final report summarizing the entire project, including methodologies, findings, and recommendations.
- Present the final report to the Municipality, highlighting the achievements and benefits of the new addressing system.
- Conduct training sessions for municipal staff on the maintenance, update procedures, and proper usage of the digital addressing system.
- Hand over all project deliverables, including the mobile app, web application, geodatabase, and related documentation, to the Municipality for long-term use and management.
- In order to deal with potential threats and breaches, the system should be VAPT certified.
- Develop an update and scaling plan outlining the process for future data collection, system enhancements, and periodic maintenance of the addressing system to ensure its sustainability and effectiveness.

**Note:** *The consultant should consult with the concerned officials of the Tokha Municipality after signing the agreement in order to understand the Municipal requirements and also to ensure that all activities are conducted as per the need and expectations from the Municipality office. The consultant is liable to develop the system according to the needs of the Tokha Municipality and has to provide a demo of the system to the officials of the Tokha Municipality as per when asked. Besides, the consultants must ensure the following activities:*

1. *They have to visit all ward offices and organize interaction sessions together with ward officials and citizens to understand their needs and also sensitize them about the benefits of the addressing system. Also, they need to consult with ward officials for the finalization of standard names for toles, roads and streets.*
2. *Household surveys should be done by going in each household and a form should be filled up in a given format.*
3. *The consultant team needs to prepare a summarized version of their work progress in a maximum 2 pages standard format report every 15 days to the Municipality office.*

## 5. Methodology

The suggested approach for this assignment is the 'agile development' model, which aims at evolving, improving, delivering, and supporting services based on Municipality's needs, feedback, and experience. This is to ensure that the software functionality is customized to meet the demands of the Municipality. The following minimum approach is thus suggested:

- Conduct a comprehensive analysis to understand the needs, challenges faced and functional and non-functional requirements of the Municipality.
- Discussions with Tokha Municipality's relevant departments, experts and other relevant GoN/Institutions.
- Review the relevant documents of Tokha Municipality for the establishment of the Metric Addressing System.
- Coordinate with the Municipality authority and if necessary, with other government agencies to conduct a Municipality level Drone survey for acquisition of high-resolution datasets.
- Create a system design document for the Metric Addressing System (both mobile and web application) in line with the requirements.

- Develop a Beta Version of the Metric Addressing System based on the approved system design document for testing. Conduct system testing and user acceptance testing and follow up on fixing incidents.
- Prepare training plan/course according to training requirement for municipality staff, including developing a standard user manual for products and solution modules in English as well as in Nepali language. In addition to this, consultants are liable to develop the procedural step in Nepali language.
- Provide training of trainers for Municipality's team, proposed 4–5-day training for end users and another 7- day training on system administration
- Validate deliverables and produce an online technical support system for debugging and ensuring smooth system administration for a period of one year after the system is delivered to Municipality.
- Coordinate, cooperate and support to install the household number plates for each house and streets in close coordination with plate installer and homeowners/community.
- Discuss/present the demo of the Metric Addressing System.

## 5. Technical Details of House Number and Street signage plate

The specification of house number and street signage plate will be determined after finalizing actual no. of houses and road inventory.

## 6. Output/ Deliverables

After carrying out the scope of activities, the consultant should hand over the following output and deliverables to Tokha Municipality.

SN	DELIVERABLES	TIME
<b>Main consulting work: (9 months)</b>		
1	Inception Report Revised timeline, Findings from the need assessment study and detailed requirement listing	20 days from work order
2	A standard SRS including relevant system-related documentation along with Graphical Mockups for both Mobile and Web Application	1 months
3	Mobile Application	2 months
4	Household Survey	3 months
5	Orthophoto map from drone Based High Resolution Aerial Survey	2 months
6	Integrated Municipal Geodatabase	2 months
7	Data Validation Workshops at all wards	1 months

8	Web GIS Based Municipal Addressing System with automatic house number generation with drone orthophoto as a base layer.	1 months
9	Training to Municipal Officials on how to use the system after the project period and keep it updated	Last month
12	Sustainability Plan including details regarding linking the system with the existing business process of the Municipality	After nameplate installation
13	Final Report and system user manual with source code and <b>VAPT and system will be hosted</b> in the server environment provided by Tokha Municipality	After nameplate installation
<b>Coordination work: (3 month)</b>		
9	Number Plate Installation	Upto 12 <sup>th</sup> month

Note: The consultancy work will be for 9 months and the coordination work for 3 months for number plate installation. The coordination budget for consultancy service is under this service.

## 7. Submission of reports and presentation of the works

Following report shall submit in time as mentioned below:

No of installments	Time period	Payment in %	Report submitted by the consultant
First	At the end of 1st month of date of agreement	20%	Inception Report of overview of the project, outlining its objectives, scope, timeline, and resources required, 3 set hard copies and 1 set soft copy with advance payment guarantee.
Second	At the end of fourth month of date of agreement	40%	Field Report/ Draft Report of Drone based aerial survey, data processing and GIS based mapping and Beta mobile application and web application, 3 set hard copies and 1 set soft copy
Third	At the end of 7th month of date of agreement	30%	Draft-final of complete data collection on household survey and road dataset, 3 set hard copies and 1 set soft copy
Fourth/ Final	Approval of the client and submission of final report with VAPT and final approval from Municipal Executive.	10%	Report on Installation of House plate number and User Manual, Source code, VAPT certification, Colored Final report 3 set hard copies and 1 set soft copy

Note: Final payment after completion of house plate installation.

- a. Ward level interaction workshop for data validation and sensitization about house





numbering at least 3 times per wards, all expenses paid by the selected firm.

- b. Municipality level project Kickoff and Dissemination program or workshop: at least three times, all expenses paid by the selected firm.
- c. The selected firm must cooperate and coordinate during installation of number plate.

#### **8. Technology Transfer:**

- a. The technology transfer period shall be 12 months from the date of work completion.
- b. The consultant must hire 2 persons with at least +2 level pass in related field and their salary must be at least Assistant IV Level determined by Government of Nepal. The consultant should employ them from the date of work order/agreement and make them learn the technology for at least 24 months. Agreement and pay slips must be submitted quarterly to the Municipality. This budget is also included in this consultancy services and must be paid by the selected consultancy firm.
- c. The consultant must impart knowledge to the concerned officials continuously.

#### **9. Committee for support:**

##### **a. Municipal Level Facilitation Committee**

- Mayor (Coordinator)
- Deputy Mayor (Member)
- Chief Administrative Officer (Member)
- Expert on related field if available
- Accounts Officer (Member)
- Planning Officer (Member)
- All wards' chairmen (Members)
- Engineer (Naksa Section head)
- Information Technology Officer (Secretary)

##### **Roles and Responsibility of Municipal Level Facilitation Committee:**

- Address issues that can't be solved by Ward Level Facilitation Committee
- Conduction of Meeting on requirement basis
- Street naming facilitation
- Coordination on Drone permission recommendation on concerned authority
- Survey coordination
- Dispute settlement
- Miscellaneous

##### **b. Ward Level Facilitation Committee of all 11 wards:**

- Ward Chairman (Coordinator)
- Ward Members (Member)
- Amin of Municipality (Member)
- Expert residing in the respective ward with relevant sound knowledge (at most 2 with at least a female if available)
- Ward Secretary (Secretary)

##### **Roles and Responsibility of Ward Level Facilitation Committee:**

- Forward the issues to Municipal Level Facilitation Committee
- Conduction of Meeting on requirement basis
- Street and tole naming facilitation
- Survey coordination

- Dispute settlement
- Miscellaneous

## 9. Key Personnel and Staff Input

The consulting firm, for this assignment, should propose the following experts:

### Key Experts | Staffs

- Team Leader (1)
- Urban Planning Expert (1)
- GIS Expert (1)
- Drone Mapping Expert (1)
- Cyber Security Specialists (1)
- Sr. Software Developer (1)

### Non-Key Experts | Staffs

- Web GIS System Lead (1)
- Software Developer/Web Programmer (6)
- System Architect (1)
- UX/UI Designer (1)
- QA Engineer (1)
- Surveyors/Supervisors (3)
- Data Enumerator (30)
- Documentation Expert/Content Writer (1)
- Support Staff (1)

Key Experts		
Team Leader	Responsibility	<ul style="list-style-type: none"> <li>● Responsible for planning and implementation of the project with desired scope and quality as per the TOR.</li> <li>● Responsible for mobilizing the team members and supervising team members' work.</li> <li>● Responsible for managing all aspects of a project, from planning to execution, monitoring and controlling, communication, quality management, and risk management, to ensure the successful completion of the project.</li> <li>● Result /output dissemination work.</li> </ul>
	Qualifications	<b>Education:</b> Master Degree in Informatics /Digital Development /Geoinformatics/ Urban Planning / or related field
	Experience	<ul style="list-style-type: none"> <li>➤ <b>General Experience:</b> At least 7 years of experience</li> <li>➤ <b>Specific Experience:</b> <ul style="list-style-type: none"> <li>● Should have led and completed on Drones and Web GIS Based House Numbering projects</li> <li>● Should have led and completed the design and development of Rural/Municipal level profile preparation</li> </ul> </li> </ul>
Urban Planning Expert	Responsibility	Urban planners develop comprehensive plans for urban areas, civil engineers design and oversee construction of infrastructure projects

	Qualifications	<b>Education:</b> Master Degree in Urban Planning /Urban Design or related field
	Experience	<ul style="list-style-type: none"> <li>➤ <b>General Experience:</b> At least 5 years of experience</li> <li>➤ <b>Specific Experience:</b> <ul style="list-style-type: none"> <li>● Experience on completed Drones and Web GIS Based House Numbering projects</li> <li>● Should have completed Integrated urban planning and development related projects</li> </ul> </li> </ul>
GIS Expert	Responsibility	<ul style="list-style-type: none"> <li>● GIS specialists design digital maps using geospatial data and analyze spatial and non-spatial information.</li> <li>● Responsible for overseeing and coordinating the process of gathering, organizing, and validating data to ensure its accuracy and relevance for analysis and decision-making purposes.</li> </ul>
	Qualifications	<b>Education:</b> Bachelor Degree in Geomatics/Geoinformatics or related field
	Experience	<ul style="list-style-type: none"> <li>➤ <b>General Experience:</b> At least 5 years of experience</li> <li>➤ <b>Specific Experience:</b> <ul style="list-style-type: none"> <li>● Experience on completed Web GIS Based House Numbering projects</li> <li>● Experience in design and development of GIS Based data collection, mapping and visualization in at least 2 projects (completed)</li> </ul> </li> </ul>
Drone Mapping Expert	Responsibility	Responsible for utilizing drones and specialized software to capture, process, and analyze geospatial data, creating accurate maps and 3D models for surveying.
	Qualifications	<b>Education:</b> Bachelor Degree in Geomatics/Geoinformatics or related field
	Experience	<b>General Experience:</b> At least 4 years of experience <b>Specific Experience:</b> Should have completed at least two Drones based projects.
Cyber Security Specialist/System Security Auditor	Responsibility	<ul style="list-style-type: none"> <li>● Responsible for protecting computer systems, networks, and data from security breaches and implementing measures to prevent and mitigate cyber threats.</li> <li>● VAPT and other security audit to make system secure</li> </ul>
	Qualifications	<b>Education:</b> Bachelor degree in Networking and Security / Cyber Security or related field
	Experience	<b>General Experience:</b> At least 4 years of experience <b>Specific Experience:</b> Experience in protecting digital systems, networks, and data from unauthorized access, breaches, and cyber threats in at least two projects (completed)
Sr. Software Developer	Responsibility	A senior software developer is responsible for designing, developing, and maintaining high-quality software and web applications, while providing technical guidance and leading development teams.

	Qualifications	<b>Education:</b> Bachelor in ICT or Computer Engineering or related field
	Experience	<b>General Experience:</b> At least 4 years of experience <b>Specific Experience:</b> Experience in Design and development of digital software consisting of both web and mobile application in at least 2 projects (completed).
<b><u>Non-Key Expert</u></b>		
Web GIS System Lead	Responsibility	<ul style="list-style-type: none"> <li>Responsible for development and maintenance of web-based Geographic Information System (GIS) applications focused on managing and optimizing addressing data for efficient navigation and location-based services.</li> <li>Responsible for overseeing and coordinating the process of gathering, organizing, and validating data to ensure its accuracy and relevance for analysis and decision-making purposes.</li> </ul>
	Qualifications	Bachelor Degree in Geomatics/ Geoinformatics
	Experience	<ul style="list-style-type: none"> <li>At least 4 years of experience in IT industry</li> <li>Experience in design and development of GIS Based data collection, mapping and visualization projects in at least 3nos</li> </ul>
Software Developer/Web Programmer	Responsibility	A software developer/web programmer is responsible for web & mobile applications and software solutions by writing code, debugging, testing, and collaborating with team members to deliver high-quality products.
	Qualifications	Bachelor in ICT or Computer Engineering or equivalent
	Experience	3 years of experience in software development.
System Architect	Responsibility	Overall involvement in the development of the system, leads and manages a team of engineers, ensuring efficient project execution, fostering collaboration, and driving technical excellence.
	Qualifications	Bachelor in ICT or Computer Engineering or equivalent
	Experience	5 years of experience as a software engineer, working with diverse technology stacks and roles, including full-stack web development, mobile app development, database management, cloud computing, DevOps, and technical leadership.
Data Collection Lead	Responsibility	Responsible for development and maintenance of web-based Geographic Information System (GIS) applications focused on managing and optimizing addressing data for efficient navigation and location-based services.
	Qualifications	Bachelor in ICT or Computer Engineering or equivalent
	Experience	Led data collection efforts for 5 diverse projects and coordinating teams
UX/UI Designer	Responsibility	<ul style="list-style-type: none"> <li>Design front-end of the system as per requirement, Develop a robust form builder in support of web developer,</li> <li>Structure pages based on the web services developed</li> </ul>

	Qualifications	Bachelors in ICT or Computer Engineering or equivalent
	Experience	3 years sound experience in UX/UI design of web application,
QA Engineer	Responsibility	To ensure that products or services meet established standards and requirements through systematic testing, analysis, and process improvement.
	Qualifications	Bachelor's degree in IT or relevant field
	Experience	3 years of working experience in the field of quality testing/assurance
Surveyors/Supervisors	Responsibility	<ul style="list-style-type: none"> <li>• Survey related works</li> <li>• Collecting accurate and complete data through surveys and interviews and supervised and monitored works of enumerators as well as the data collected from enumerators for research or statistical analysis.</li> </ul>
	Qualifications	Minimum PCL Degree in Survey
	Experience	1 years of experience of household survey, supervision, data entry, validation and monitoring of field survey
Enumerators	Responsibility and qualification	Responsibility: Data collection through survey; Qualification: +2 or PCL level in any subject
Documentation Expert/Content Writer	Responsibility	<ul style="list-style-type: none"> <li>• Develop and maintain the documents for a firm, change and update records to new and changing requirements</li> <li>• Prepared detailed manual, FAQs for admin and basic users</li> </ul>
	Qualifications	Bachelor degree in any stream with good knowledge in IT (shall be certified in basic computer course)
	Experience	3 years in user-centric documentation creation
Support Staff	Responsibility	<ul style="list-style-type: none"> <li>• Coordination and facilitation in management</li> <li>• Support in overall work</li> </ul>
	Qualifications	+2 degree in any stream with good knowledge in IT and hospitality
	Experience	1 years in hospitality management

**Note: Each non-key staff member should submit at least one CV (except for Enumerators).**



## 10. Questions for household survey (Just a sample)

<b>फारम नं:</b>			
<b>उत्तरदाताको नाम:</b>		<b>घरमुलीको नाम:</b>	
<b>परिवार संख्या:</b>	<b>घरको फोन नं:</b>	<b>घर नं:</b>	<b>सडक नं:</b>
<b>टोल:</b>	<b>बसाई सरेर आएको भए जिल्लाको नाम :</b>		<b>परिवारको मुख्य पेसा:</b>

<b>पारिवारिक खण्ड</b>			
घरको स्वामित्व कसको हो ? 1. निजी वा आफ्नै घर <input type="checkbox"/> 2. भाडामा <input type="checkbox"/> 3. अन्य <input type="checkbox"/>	घर धनीको नाम : ----- -----	घर धनीको पुर्खौली घर हो ? 1. हो <input type="checkbox"/> 2. होइन <input type="checkbox"/>	पुर्खौली घर होइन भने कहिले बनाएको वा बसाई सरेको ? 1. 1. बसाई सरेर आएको साल:.....
घरको मात्र क्षेत्रफल कति छ? .....रो.....आ.....पै.....दा	घर र जग्गाको क्षेत्रफल कति छ? .....रो.....आ.....पै.....दा		
घरमा अन्य भाडामा राखेको छ? 1. पुरै भाडा: <input type="checkbox"/> 2. आंशिक भाडा: <input type="checkbox"/> 3. खाली <input type="checkbox"/>	भाडामा छ भने भाडामा बस्ने व्यक्तिहरूका लागि अर्को फारम प्रयोग गर्ने ।	बसाई सराई कागजात ? 1. छ <input type="checkbox"/> 2. छैन <input type="checkbox"/>	नक्स पस्स भएको छ? 1. छ <input type="checkbox"/> 2. छैन <input type="checkbox"/>
घरको अवास्थिति			
घर सम्म पुग्ने बाटोको अवस्था 1. मोटर बाटो <input type="checkbox"/> 2. बाईक सम्म जाने <input type="checkbox"/> 3. हिड्न मात्र मिल्ने <input type="checkbox"/>	बाटोको चौडाई .....	घर रहको स्थान : 1. मुख्य सडक छेउ <input type="checkbox"/> 2. चोक भित्र <input type="checkbox"/> 3. चोक भित्र <input type="checkbox"/> 4. गल्ली/गोरेटो <input type="checkbox"/>	घरको किसिम: 1. पुरानो ईटा माटोको <input type="checkbox"/> 2. पिलर ढलानको <input type="checkbox"/> 3. टहरा <input type="checkbox"/>

सेवा सुबिधा			
<b>ढल निकास सेवा</b>  1.ढल सेवा <input type="checkbox"/>  2.सेफ्टीट्यांकी <input type="checkbox"/>	<b>खानेपानी सेवा</b> 1.खानेपानी सस्थानको सेवानै छ/छैन 2.पूर्ण खानेपानी सस्थानमा निर्भर <input type="checkbox"/> 3.कुवा ईनार <input type="checkbox"/> 4.ट्यांकर <input type="checkbox"/>	<b>बिदुत्तका श्रोत</b>  1.बिदुत्त प्राधिकरण <input type="checkbox"/>  2.सोलार/इन्भरतर <input type="checkbox"/>  3.जेनेटर <input type="checkbox"/>	<b>संचार साधन</b>  1.टीबी <input type="checkbox"/>  2.मोबाईल <input type="checkbox"/>  3.टेलिफोन <input type="checkbox"/>  4.इन्टरनेट <input type="checkbox"/>  5.पत्रिका <input type="checkbox"/>  6.कम्पुटर/ल्यापटप <input type="checkbox"/>
चर्पी संख्या : .....		<b>खाना पकाउन</b> 1.एल.पि.ग्यास <input type="checkbox"/> 2.बिदुत्त हिटर <input type="checkbox"/> 3.इन्डक्सन हिटर <input type="checkbox"/>	
<b>यातायातका साधन</b>  1.साइकल <input type="checkbox"/>  2.मो.साईकल  3.कार/जिप <input type="checkbox"/>  4.बस/ट्रक <input type="checkbox"/>  5.ट्याक्टर <input type="checkbox"/>	<b>अन्य उपकरण</b>  1.पानी तान्ने मेसिन <input type="checkbox"/>  2.सोलार हिटर <input type="checkbox"/>  3.सोलार प्यानल <input type="checkbox"/>  4.रेफ्रिजेनेटर <input type="checkbox"/>	1.वासिंग मेसिन <input type="checkbox"/>  2.एयर कन्डिसन <input type="checkbox"/>	



पारिवारिक उपचार स्थान				
1. सरकारी हस्पिटल <input type="checkbox"/> 2. प्राइमेट क्लिनिक/हस्पिटल <input type="checkbox"/> 3. सामुदायिक स्वास्थ्य <input type="checkbox"/> 4. आयुर्वेद/बैद्य <input type="checkbox"/>	<b>कोहि मृत्यु भएको छ १ बर्ष भित्र ?</b> 1. छ <input type="checkbox"/> 2. छैन <input type="checkbox"/>	<b>मृत्यु भएको छ भने ;</b> 1. कालगति <input type="checkbox"/> 2. दुर्घटना <input type="checkbox"/> 3. रोग <input type="checkbox"/>	<b>दुर्घटना/रोग :</b> ..... <b>मृत्यु हुदाको उमेर:</b> .....	
<b>७२ सालको भूकम्पले यो घरलाई असार गरेको ?</b> १. छ <input type="checkbox"/> २. छैन <input type="checkbox"/>	<b>घरको मासिक खर्च कति छ (बार्षिक) ?</b> 1. २० हजार – ५० हजार 2. ५० हजार – १ लाख 3. १ लाख – २ लाख 4. २ लाख देखि माथि	<b>कौशी खेति छ?</b> छ <input type="checkbox"/> छैन <input type="checkbox"/>	<b>करेसा बारी छ/छैन ?</b> 1. छ <input type="checkbox"/> छैन <input type="checkbox"/>	<b>घर पालुवा जनावर छ ? (संख्या)</b> 1. कुकुर..... 2. बिरालो..... 3. चरा..... 4. अन्य.....
<b>गरेको भए कति सरकार बाट क्षतिपूर्ति रकम पाउनु भयो ?</b> 1. पायो <input type="checkbox"/> 2. पाएन <input type="checkbox"/>				
<b>फोहरमैलाको ब्यबस्थापन कसरि गर्नु हुन्छ ?</b> 1. नगरपालिका ट्रक <input type="checkbox"/> 2. निजी सस्था <input type="checkbox"/>	<b>कुहिने र नकुहिने फोहर छुट्याउनु हुन्छ ?</b> 1. छ <input type="checkbox"/> 2. छैन <input type="checkbox"/>			

घर भाडामा भए मात्र (भाडावालाको परिवार विवरण)								
	कोठा संख्या	संख्या तल्ला	मुख्य व्यक्ति को नाम	जन्म स्थान	परिवार मा जम्मा संख्या	नगरिक ता नं	पेशा वा आउनु को कारण	आएको मिति
परिवार १.								
परिवार २.								
परिवार ३.								

कुनै संस्था वा कार्यालय भाडामा रहेको भए				
	संस्थाको नाम	संस्थाको उद्देश्य	बसेको मिति	सम्पर्क व्यक्ति वा फोन नं
संस्था १				
संस्था २				



*Signature*

		घरमुलीको नाम सबै भन्दा पहिला (१ नं मा) राख्नु होला ।										
नाम	घरमुली संगको नाता	नागरिकता नं (१६ बर्ष माथिका लागि)	लिंग	बुवाको नाम	आमाको नाम	उमेर	जेष्ठ नागरिक भत्ता वा पेन्सन (६८ माथि भए)	बैबाहिक स्थिति	रक्त समूह	मोबाइल	ईमेल	जन्म दर्ता छ/छैन
	१.बाजे २.बजे ३.बुवा ४.आमा ५.काका ६.काकी ७.ठुलो बुवा ८. ठुलो मुमा ९. अन्य		१.पुरुष २.महिला ३. अन्य									छैन
१												
२												

खोप(५ वर्ष मुनिका लागि)	पासपोर्ट नं	मतदाता पत्र (१८ बर्ष माथिका लागि मात्र)	राष्ट्रिय परिचयपत्र (१६ बर्षमाथिका लागि)	जात	धर्म	भाषा	शिक्षा तह	शिक्षा क्षेत्र	कलेज को किसिम	रोजगार	तह	मुख्य पेशा
		१. छ २. छैन न	३. छ ४. छैन									

सहायक पेसा	मासिक आमदानी	विज्ञता शिप तालिम	अपांगता	दिर्घ रोग	पासपोर्ट	कुनै संघ संस्थासंग आबद्ध	कोभिड खोप	डेंगु	स्वदेश/विदेश	विदेश भए मात्र	विदेश जादाको उमेर

विदेश जाँदाको शैक्षिक योग्यता	विदेश कति बर्ष भो ?	जानुको मुख्य कारण	कुन देश	शिक्षा क्षिेत्र	बिदेशमा जन्मेको भए कुन देश	कुनै अपांगता छ ?	कुनै कडा रोग छ ?

## D. Evaluation of Consultant's EOI Application

Consultant's EOI application which meets the eligibility criteria will be ranked based on the Ranking Criteria.

<b>i) Min Eligibility &amp; Completeness Test</b>	<b>Compliance</b>
<b>Criteria Title</b>	
Copy of Registration of the company/firm	
VAT/PAN Registration ( <i>for National consulting firm only</i> )	
Tax Clearance/Tax Return Submission/Letter of Time Extension for Tax Return Submission	
In case of a natural person or firm/institution/company which is already declared blacklisted and ineligible by the GoN, any other new or existing firm/institution/company owned partially or fully by such Natural person or Owner or Board of director of blacklisted firm/institution/company; shall not be eligible consultant.	
If the corruption case is being filed to Court against the Natural Person or Board of Directors of the firm/institution /company or any partner of JV, such Natural Person or Board of Directors of the firm/institution /company or any partner of JV shall not be eligible to participate in procurement process till the concerned Court has not issued the decision of clearance against the Corruption Charges.	
EOI Form 1: Letter of Application	
EOI Form 2: Applicant's Information Form	
EOI Form 3: Experience (3(A) and 3(B))	
EOI Form 4: Capacity	
EOI Form 5: Qualification of Key Experts	
JV agreement in case of JV (maximum no. of JV partners shall be 3 no.)	
Minimum years of firm establishment shall be 5 years for Lead firm and minimum 3 years for JV partners.	

<b>ii) EOI Evaluation</b>	<b>Insert Minimum Requirement if Applicable</b>	<b>Score [Out of 100%]</b>
<b>Criteria</b>		
<b>A. Qualification</b>		<b>Score: 40.0</b>
Team Leader	<ul style="list-style-type: none"> <li>➤ <b>Education:</b> Master Degree in Informatics /Digital Development /GeoInformatics/ Urban Planning / or related field</li> <li>➤ <b>General Experience:</b> At least 7 years of experience</li> <li>➤ <b>Specific Experience:</b> <ul style="list-style-type: none"> <li>● Should have led and completed on Drones and Web GIS Based House Numbering projects</li> <li>● Should have led and completed the design and development of</li> </ul> </li> </ul>	

	Rural/Municipal level profile preparation	
Urban Planning Expert	<ul style="list-style-type: none"> <li>➤ <b>Education:</b> Master Degree in Urban Planning /Urban Design or related field</li> <li>➤ <b>General Experience:</b> At least 5 years of experience</li> <li>➤ <b>Specific Experience:</b> <ul style="list-style-type: none"> <li>● Experience on completed Drones and Web GIS Based House Numbering projects</li> <li>● Should have completed Integrated urban planning and development related projects</li> </ul> </li> </ul>	
GIS Expert	<ul style="list-style-type: none"> <li>➤ <b>Education:</b> Bachelor Degree in Geomatics/Geoinformatics or related field</li> <li>➤ <b>General Experience:</b> At least 5 years of experience</li> <li>➤ <b>Specific Experience:</b> <ul style="list-style-type: none"> <li>● Experience on completed Web GIS Based House Numbering projects</li> <li>● Experience in design and development of GIS Based data collection, mapping and visualization in at least 2 projects (completed)</li> </ul> </li> </ul>	
Drone Mapping Expert	<ul style="list-style-type: none"> <li>➤ <b>Education:</b> Bachelor Degree in Geomatics/Geoinformatics or related field</li> <li>➤ <b>General Experience:</b> At least 4 years of experience</li> <li>➤ <b>Specific Experience:</b> Should have completed at least two Drones based projects.</li> </ul>	
Cyber Security Specialists	<ul style="list-style-type: none"> <li>➤ <b>Education:</b> Bachelor degree in Networking and Security / Cyber Security or related field</li> <li>➤ <b>General Experience:</b> At least 4 years of experience</li> <li>➤ <b>Specific Experience:</b> Experience in protecting digital systems, networks, and data from unauthorized access, breaches, and cyber threats in or security audited at least two projects for both (completed)</li> </ul>	
Sr. Software Developer	<ul style="list-style-type: none"> <li>➤ <b>Education:</b> Bachelor in ICT or Computer Engineering or related field</li> <li>➤ <b>General Experience:</b> At least 4 years of experience</li> <li>➤ <b>Specific Experience:</b> Experience in Design and development of digital software</li> </ul>	

	consisting of both web and mobile application in at least 2 projects (completed).	
<b>B. Experience</b>		<b>Score: 40.0</b>
General experience of consulting firm within last 7 years	<ul style="list-style-type: none"> <li>At least 3 no. of completed projects, each project with above 20 lakhs (single or JV)</li> <li>Completed at least one Web GIS based data collection/mapping/ management/ visualization systems/projects for Government entities</li> </ul>	
Specific experience of consulting firms within the last 7 years.	<ul style="list-style-type: none"> <li>Completed mobile app incorporating GIS</li> <li>Successfully completed in Drones Based House Numbering of Rural/Municipalities</li> <li>GIS based Emergency Planning and Disaster Information Management System that can generate Household Level Disaster Profile</li> <li>Aerial surveying using drone technology or helicopter</li> </ul>	
<b>C. Capacity</b>		<b>Score: 20.0</b>
Financial Capacity. [Average annual turnover]	Average annual turnover of best 3 years of the last 7 fiscal years: 21.5 million (Twenty-One point five Million rupees)	
Hardware /Accessories	Hybrid Model drones that can be operated in dense urban Environments with at least one Hybrid drone	
	Powerful processing CPU device for large amounts of drone image processing with at least 64GB RAM, 8GB graphics card and 500GB SSD	

#### Minimum score to pass the EOI: 60

Note: If the corruption case is being filed to Court against the Natural Person or Board of Directors of the firm/institution /company or any partner of JV, such Natural Person or Board of Director of the firm/institution /company or any partner of JV such consultant's proposal shall be excluded during the evaluation.

#### Mandatory Requirements for Key -Experts and the firm:

- Work Completion certificate
- Academic documents (final awarded degree) for academic qualifications and work experience letter (stating project details) along with CVs must be submitted for proposed human power.
- Sufficient evidences must be attached for annual turnover and purchased bill/rented agreement with purchased bill must be attached for proposed equipment along with relevant technical specification (and/or searchable in websites where applicable)

#### Miscellaneous:



- d. The higher the qualification (where applicable), the higher the marks.
- e. Questionnaires for HH survey are just a sample. The final questions will be set up with the conduction of workshop.
- f. Ward level interaction workshop for data validation and sensitization about house numbering at least 3 times per wards, all expenses incurred by the selected firm.
- g. Municipality level project Kickoff and Dissemination program or workshop: at least three times, all expenses incurred by the selected firm.
- h. The selected firm must cooperate and coordinate during installation of number plate.



## E. EOI Forms & Formats

Form 1. Letter of Application

Form 2. Applicant's information

Form 3. Experience (*General, Specific, and Geographical*)

Form 4. Capacity

Form 5. Qualification of Key Experts

# 1. Letter of Application

(Letterhead paper of the Applicant or partner responsible for a joint venture, including full postal address, telephone no., fax, and email address)

Date: .....

To,

Full Name of Client: \_\_\_\_\_

Full Address of Client: \_\_\_\_\_

Telephone No.: \_\_\_\_\_

Fax No.: \_\_\_\_\_

Email Address: \_\_\_\_\_

Sir/Madam,

1. Being duly authorized to represent and act on behalf of (hereinafter "the Applicant"), and having reviewed and fully understood all the short-listing information provided, the undersigned hereby apply to be short-listed by **[Insert name of Client]** as Consultant for **{Insert brief description of Work/Services}**.
2. Attached to this letter are photocopies of original documents defining:
  - a) the Applicant's legal status.
  - b) the principal place of business.
3. **[Insert name of Client]** and its authorized representatives are hereby authorized to verify the statements, documents, and information submitted in connection with this application. This Letter of Application will also serve as authorization to any individual or authorized representative of any institution referred to in the supporting information, to provide such information deemed necessary and requested by yourselves to verify statements and information provided in this application, or with regard to the resources, experience, and competence of the Applicant.
4. **[Insert name of Client]** and its authorized representatives are authorized to contact any of the signatories to this letter for any further information.<sup>2</sup>
5. All further communication concerning this Application should be addressed to the following person,  
*[Person]*  
*[Company]*  
*[Address]*  
*[Phone, Fax, Email]*
6. We declare that we have no conflict of interest in the proposed procurement proceedings and we

<sup>2</sup> Applications by joint ventures should provide on a separate sheet, relevant information for each party to the Application.



have not been punished for an offense relating to the concerned profession or business and our Company/firm has not been declared ineligible.

7. We further confirm that, if any of our experts is engaged to prepare the TOR for any ensuing assignment resulting from our work product under this assignment, our firm, JV member, or sub-consultant, and the expert(s) will be disqualified from short-listing and participation in the assignment.
8. The undersigned declares that the statements made and the information provided in the duly completed application are complete, true, and correct in every detail.

**Signed:**

**Name:**

**For and on behalf of (name of Applicant or partner of a joint venture):**



A handwritten signature in blue ink, appearing to be 'S. S. S.', written over a light blue grid background.

## 2. Applicant's Information Form

*(In case of the joint venture of two or more firms to be filled separately for each constituent member)*

1. Name of Firm/Company:
2. Type of Constitution (Partnership/ Pvt. Ltd/Public Ltd/ Public Sector/ NGO)
3. Date of Registration / Commencement of Business (Please specify):
4. Country of Registration:
5. Registered Office/Place of Business:
6. Telephone No; Fax No; E-Mail Address
7. Name of Authorized Contact Person / Designation/ Address/Telephone:
8. Name of Authorized Local Agent /Address/Telephone:
9. Consultant's Organization:
10. Total number of staff:
11. Number of regular professional staff:

*(Provide Company Profile with a description of the background and organization of the Consultant and, if applicable, for each joint venture partner for this assignment.)*

### 3. Experience

#### 3(A). General Work Experience

*(Details of assignments undertaken. Each consultant or member of a JV must fill in this form.)*

S. N.	Name of assignment	Location	Value of Contract	Year Completed	Client	Description of work carried out
1.						
2.						
3.						
4.						
5.						
6.						
7.						

### 3(B). Specific Experience

#### Details of similar assignments undertaken in the previous seven years

*(In case of the joint venture of two or more firms to be filled separately for each constituent member)*

Assignment name:	Approx. value of the contract (in current NRs; US\$ or Euro) <sup>3</sup> :
Country: Location within country:	Duration of assignment (months):
Name of Client:	Total No. of person-months of the assignment:
Address:	Approx. value of the services provided by your firm under the contract (in current NRs; US\$ or Euro):
Start date (month/year): Completion date (month/year):	No. of professional person-months provided by the joint venture partners or the Sub-Consultants:
Name of joint venture partner or sub-Consultants, if any:	Narrative description of Project:
Description of actual services provided in the assignment:  <b>Note: Provide highlights on similar services provided by the consultant as required by the EOI assignment.</b>	

Firm's Name: \_\_\_\_\_

<sup>3</sup> Consultant should state value in the currency as mentioned in the contract



### 3(C). Geographic Experience

#### Experience of working in a similar geographic region or country

(In case of a joint venture of two or more firms to be filled separately for each constituent member)

No	Name of the Project	Location (Country/ Region)	Execution Year and Duration
1.			
2.			
3.			
4.			
5.			
6.			
7.			



## 4. Capacity

### 4(A). Financial Capacity

*(In case of joint venture of two or more firms to be filled separately for each constituent member)*

Annual Turnover	
Year	Amount Currency

- Average Annual Turnover of Best of 3 Fiscal Year  
Of Last 7 Fiscal Years

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*(Note: Supporting documents for Average Turnover should be submitted for the above.)*

**4(B). Infrastructure/equipment related to the proposed assignment**

No	Infrastructure/equipment Required	Requirements Description
1.		
2.		
3.		
4.		
5.		

## 5. Key Experts (Include details of Key Experts only)

*(In case of the joint venture of two or more firms to be filled separately for each constituent member)*

SN	Name	Position	Highest Qualification	Work Experience (in the year)	Specific Work Experience (in the year)	Nationality
1						
2						
3						
4						
5						

(Please insert more rows as necessary)