Terms of Reference (ToR):
Hiring Consultant for BDRCS Central Data & Information Management System

1. Introduction:

Bangladesh Red Crescent Society (BDRCS) is the country's oldest and largest humanitarian organization. The Society was constituted on 31 March, 1973 by the President's Order No. 26 of 1973 with retrospective effect from 16 December 1971. Since the establishment, as an auxiliary to the public authorities, the Society has been providing humanitarian assistance to the most vulnerable people in any natural and human-induced disasters. However, the evolving trend, pattern and magnitude of disasters and crises has prompted BDRCS to invest in establishing data and information management system which is inevitable to improve the efficiency, relevance, compliance to minimum standards in providing humanitarian services, especially in the complex humanitarian imperatives. Currently some department, program, projects, manage their own database, which are mostly unautomated and are not connected to a central data management and analysis system. Although, there are instances of applying mobile based data collection, those are very much project specific and not widely practiced for data collection at different level. There is no standard analytical / visualization tool is being used for standardized reporting.

In view of improving the data and information management system, BDRCS envisions towards establishing a platform to enable management and governance informed decision making and improved service delivery to vulnerable communities. As a part of this, BDRCS intends to start with a simple automated system in its 1st phase of central data & information management system development initiative and incorporate necessary expansion into the system gradually by phases.

2. OBJECTIVES

Overall and specific objectives

The overall objective is to create an organization wide practice and culture for data and information management that enables management and governance informed decision making based on up to date and validated information. The specific objectives are:

- To create a platform for data collection and management through a centralized system which is automated and technology based against the key organizational indicators
- Access and availability of unified and harmonized data and information for unified reporting that serves purposes of BDRCS internally and externally
- To create an interactive dashboard that visualizes summarized key information of BDRCS against it's targets and performance indicators

Key Outputs

- A scalable, reliable, and robust and software solution to collect, transmit, store and process data.
- Automated system for analysis, visualization and reporting
- Necessary tools, templates and guidelines for data management and quality assurance
- A pool of relevant personnel who are well capable/trained to handle data management system

Main Deliverables:

- System for data collections including android app
- Appropriate data analytical tools
- Customized dashboard
- Google Map/ open street map and master roll integration

- Web application for information management
- Maintenance log
- Module, course outline and materials for staff and volunteer training

3. THE SYSTEM OVERVIEW:

At the first Phase, BDRCS aims at establishing a simple system for data collection, analysis, visualization and reporting focusing on key organizational targets and indicators. The system must connect all 68 Units and 17 Departments and inherent program/ projects to collect data against respective indicators. However, it has to be defined throughout the process of this database development that who to provide what data. The below table provides brief overview of indicators for collecting data:

Indicator	Definition/ Disaggregation	Remarks
1. Related to people who make up of BDRCS		
1.1. No. of fulltime staff of BDRCS	• No. of fulltime revenue staff • No. of fulltime contractual staff	All staff list with records of training and workshop participation. List of staff participated training overseas
1.2. No. of Governing Board members	• No. of Managing Board member of BDRCS • No. of Unit Executive Committee members	List of NHQ MB members and Unit UEC members
1.3. No. of members	• No. of Life Members • No. of Annual Members	Life members list/ database
1.4. No. of volunteers	• No. of people (RCY) volunteered at least 4 hours in last one year • No. of youth members in educational institutes (co-curriculum committee members) • No. of school/ college/ madrasas covered under co-curriculum activity	RCY list/ database and list of institutes under RCY co-curriculum program
2. Related to people reach through long term programs and services		
2.1. No. of people reached through long-term program	• No. of people reached through WASH activity • No. of people reached through Shelter activity • No. of people reached through DRR activity • No. of people reached through Livelihood activity • No. of people reached through multi-purpose cash grant program • No. of people reached through Migration programing • No. of people reached through programming on social, cultural and non-violence	
3. Related to people reach through emergency response operation		
3.1. No. of people reached through emergency operation	• No. of people reached through emergency Food distribution • No. of people reached through emergency NFI distribution • No. of people reached through Emergency medical service • No. of people reached through emergency drinking water distribution • No. of people reached through Hygiene kits distribution • No. of damaged latrine repaired • No. of damaged tube-well/ water point repaired • No. of people reached through cash distribution	

	• No. of people reached through Restoring Family Links (RFL) services
4. Related to people reach through blood and health services	
4.1. No. of people reached through blood donation	• No. people donated blood • No. of people reached through safe blood transfusion services
4.2. No. of people reached through health services	• No. of people reached through primary health care services of 56 MCH centers • No. of people reached through tertiary health services from hospitals & clinics • No. of nurses & mid-wives graduated from Nursing Institute • No. of doctors graduated from Medical collage hospital
5. Related to Project and partnership	
5.1. No. of partners of BDRCS	• No. of Movement Partners • No. of local and non-Movement Partners • No. of projects supported by partners
6. Related to fundraising and income generation	
6.1. Amount of fund raised through fundraising and income generating activity	• Amount of fund raised through fundraising activities • Amount of revenue collected from real estate management • Amount of fund received from partners under program/ project partnership • No. of sources for fundraising

4. SCOPE OF WORK:

The central data management system will be designed in a way so that it provides necessary functionalities to ensure the objectives are met, outputs are achieved, deliverables are ready and the system to collect data against each of the prescribed indicators is in place. BDRCS has 18 Departments and 68 Units in 64 Districts. There are numbers of projects being implemented by those departments through selected units. This database should connect all those departments and district Units for collecting data against the indicators. BDRCS prefers to have the system done using Kobotoolbox.

5. KEY FEATURES OF THE SYSTEM:

The system needs to demonstrate high level architecting solution which should integrate options like Private cloud (VPS) or Public Cloud (AWS/Azure), On-premises, OS: Ubuntu etc. Functions and features of the database system are further elaborated below:

Forms/ tools/ templates design:
To ensure required data collection, appropriate forms and templates needs to be configured using a built-in “survey creation tool”. The system must allow incorporation/ configuration of any new/ ad-hoc indicators. A set of forms and templates must be there against each of the indicators and proxy indicators so that data flow from respective sources are smooth and on time. The tools, templates has to be designed in line with BDRCS data collection standards and must have the options of required disaggregation especially sex, age and disability.

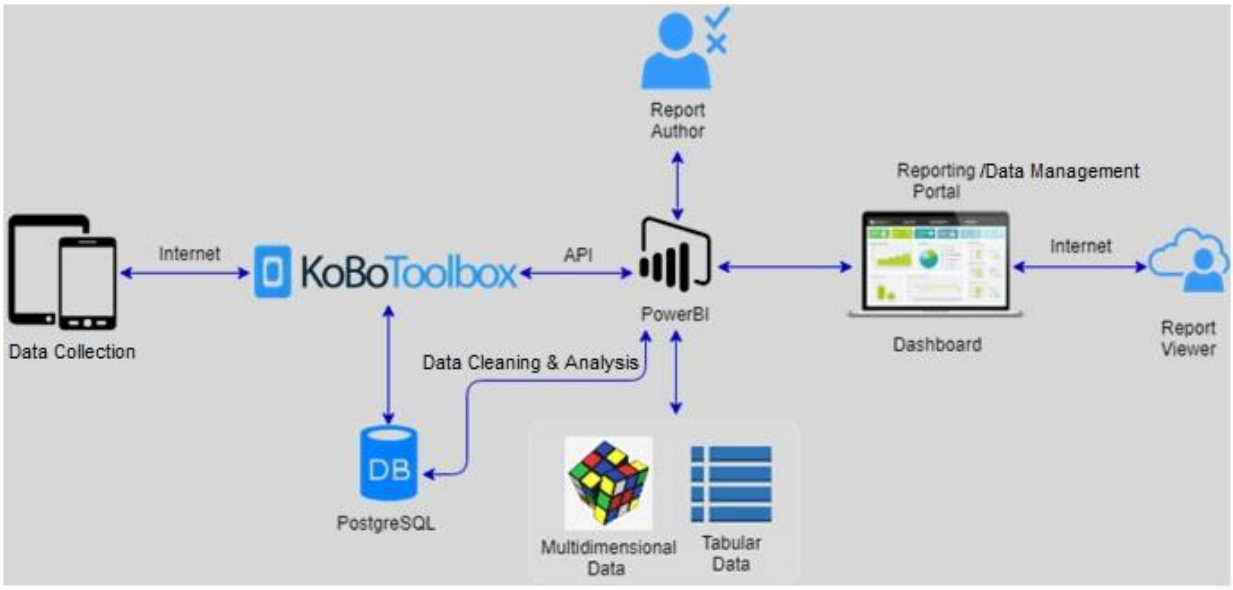
Apart from necessary tools and templates, there must be appropriate format to manage personal information (like staff, members, volunteers list, list of beneficiaries of emergency response/ recovery operation and long term programs/ projects), asset information (like list for vehicle, properties etc.) System should be capable for storing summarized data according to provided data structure and listing with searching option.

Collect data
The system must support online and offline data collection and can be done using android devices or any modern browsers. Strong safeguards against data loss, immediate availability and easy retrieval options should be some key features of the data collection system. The whole data collection system from field level to central level needs to be automated. To ensure the system works properly, the data providers (at Units and NHQ) needs to be trained. A feature of google map / open street map may be incorporated into the database system for real time data collection.

Data processing
The central data management system of BDRCS must come up with a parallel system of data analysis along with data collection. The data management system needs to integrate proper data processing features to allow cleaning, cross checking and validation of data before it appears into any report or the dashboard. However, this should not be open to all rather to few authorized person/s have the access for data processing and cross checking.

The system should support exporting all data at any time into different supported formats like Excel, CSV, KML, ZIP (for media) and SPSS. It should also support access data through API.

Analysis and visualization
The system must demonstrate data analysis and visualization features which will support accessing data from on-premises and cloud-based sources-AWS/Azure, such, PostgreSQL, SQLServer, Excel and XML, Json, Text/CSV etc. Ensure it's always up to date with automated, incremental refreshes. The solution should include the latest technologies like docker, ngnix, mongoDB, radis, RabbitMQ, ENKETO. It should support creating reports with interactive data visualizations and visual analytics (dashboard) and will support to publish to the cloud or on-premises. It should also support visualizing collected data on a map including a heatmap, clustering and other base layers etc. The below flow chart shows the whole process from data collection to reporting:



6. DURATION & TIMELINE:

BDRCS intends to establish a full-fledged information management system gradually by phases. The first phase during 2019-2020 is considered as pilot phase which will focus on having a simple system targeting key organizational indicators which will gradually be evolved according to needs and requirement of data and information management at different levels. Although BDRCS expects to have the database development done by 2 months, the consultant needs to be engaged training & capacity building of staff

and volunteers, annual maintenance etc. The timeframe should be proposed considering the following milestones:

Milestones	Activities
Database development	Demo of proposed solution
	Analysis and system design
	Develop dashboard
	Integration
	Cloud deployment
Test run of the database	Testing of the system at pilot programs, Units and Departments
	Necessary incorporation after pilot run
Training and capacity building	Training/ orientation to relevant personnel of BDRCS at NHQ level for database management
	Orientation to Unit/ Department/ Program level personnel

7. FINANCIAL PROPOSAL AND PAYMENT SCHEDULE

- Financial proposal should be done considering the following task:
  - Database development including analysis & system design, dashboard and integration
  - Test run, infrastructure setup
  - Training, capacity building,
  - Regular maintenance
  - VAT/ Tax

- Payment of 25% of total budget may be made upon signing the contract and 75% after satisfactory completion of work according to BDRCS standard payment procedure.

8. TECHNICAL COMPETENCY

Minimum Requirements, and Experience of the consultant/firm includes:

- The individual/firm should be experienced in designing hardware and software for a web-based information management system.
- At least 5 years of experience in designing and developing software and hardware for similar activity
- At least 5 such database developed in last couple of years
- Proven record of financial and institutional soundness of the individual/ firm
- Extensive experience in conducting and facilitating trainings/workshops on related issues

Relevant experience needs to be described against the below technical competencies for this assignment:

Item	Technical requirement
Form builder	Using a built-in “Survey Creation Tool”
	Using xlsform
	Maintaining and Managing question library
	Reuse existing questions and blocks of questions
	Applying validation rule of input and build complex forms with skip logic and validation
	Qualitative interview/ data collection
	Use of data types, including: Select One, Decimal, Point, Line, Area, Select Many, Date, Photo, Note, Rating, Text, Time, Audio, Barcode, Question Matrix, Number, Date & time, Video, Acknowledge, Ranking, Calculate
	User access control
Collect Data	**Online** and **Offline** data collection mode

	Collect data using Android devices (phones, tablets) or any modern browser.
	safeguards against data loss
	Data availability
Manage data	Creating auto generated summary reports with graphs and tables
	Auto disaggregated data in reports and maps i.e. by gender, age, disability and region etc.
	Data clean up
	Exporting all data in supported formats: Excel, CSV, KML, ZIP (for media) and SPSS.
Data analysis and Visualization	Using BI tools to access data from on-premises and cloud-based sources-AWS/Azure, such, PostgreSQL, SQLServer, Excel and XML, Json, Text/CSV etc. Ensure it's always up to date with automated, incremental refreshes How about dashboard?
	Using technologies such as docker, ngnix, mongoDB, radis, RabbitMQ, ENKETO.
	Incorporating advanced analytics in BI tools with the familiarity of Excel. Enable users to dig deeper into data and find patterns they may have otherwise missed, like quick measures, grouping, forecasting, and clustering
	creating reports with interactive data visualizations
Cloud technologies	AWS/Azure, docker, ngnix, mongoDB, radis, RabbitMQ, ENKETO, PostgreSQL, SQLServer, Json, XML, structured and non-structured data
Analytics tools	Power BI
Mobile based survey	KoboToolbox
Map integration	Google Map, OSM, Shape files
Web application	Web portal for MIS system using PHP/ASP.net/CMS

9. Method Of Application

Interested individual/ firm are invited to submit proposal by 26th April, 2019 through email to sayma.ferdowsy@bdrcs.org and CC: mdkamrul.hasan@bdrcs.org & subrata.biswas@bdrcs.org with the following documents:

- **Individual/ Firm profile:** CV of expert/s including records on past experience in similar assignment and references
- **Technical Proposal:** with detailed methodology, tools and work plan along with samples (at least two) of previous work
- **Financial Proposal:** listing all costs associated with the assignment including consultancy fees for database development, test run, training, maintenance, vat/tax etc.