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Section VI. Terms of Reference

TERMS OF REFERENCE

PROCUREMENT OF AN IT CONSULTANCY / FIRM FOR THE ENHANCEMENT OF THE COASTAL AND MARINE ECOSYSTEMS MANAGEMENT PROGRAM INFORMATION SYSTEM (CMEMP) OR AGOS DATABASE

Title	:	**IT Consultancy / Firm for the Enhancement of the Coastal and Marine Ecosystems Management Program Information System or the Agos Database**
Duration	:	Six (6) Months
Approved Budget Cost	:	**Php 3,000,000.00** (inclusive of tax)

I. BACKGROUND

The Biodiversity Management Bureau (BMB), in its continued dedication to advancing the goals of the Coastal and Marine Ecosystems Management Program (CMEMP) in accordance with DENR Administrative Order 2016-26, has targeted the development of a working database system. Recognizing the critical importance of accurate and accessible data in effective environmental stewardship, BMB has undertaken the development of a database to comprehensively catalog our coastal and marine resources, a key component of CMEMP's overarching strategy

In 2018, a database training workshop convened DENR personnel from across the Philippines, fostering capacity-building efforts in environmental conservation and development. Subsequently, the CMEMP Database, also known as the Agos Database, began its development journey. Designed to function as a centralized repository, the database aimed to streamline data submission processes from Protected Area (PA) management units and establish standardized templates for mapping coastal and marine habitats.

Regrettably, the current status of the database falls short of its intended functionality. Despite initial efforts, the Agos Database is not operational, rendering it incapable of fulfilling its pivotal role in facilitating data management and analysis for CMEMP initiatives. Consequently, urgent measures are imperative to rectify its

deficiencies and restore its functionality to align with the program's objectives. Therefore, it is crucial for us to engage a reputable company to enhance the database.

The complexity and scope of the Enhancement of the Coastal and Marine Ecosystems Management Program Database (ECMEMP) requires a level of expertise beyond the optimum in-house capability of the present IT staff of BMB, thus, the need to engage the services of a consulting firm for the enhancement of the system.

INTENDED USERS:

The system will primarily serve the DENR internally in its implementation of Programs for the Coastal and Marine Environment, such as the CMEMP and future similar programs, through their respective CMEMP Focals from BMB Coastal and Marine Division (CMD), and the DENR Regional, and Field Offices. It will be maintained as part of DENR BMB's intellectual property, with potential access for government partners, community members, and implementing partners after full operationalization. This approach ensures broader collaboration and supports environmental management initiatives. Additionally, the system will provide critical habitat status and spatial information essential for effective coastal and marine ecosystem management.

Apart from the DENR's internal use in the implementation and monitoring of its projects and programs for the coastal and marine environment, the system will also serve the Filipino People, from students, to other government officials and legislators, to any concerned citizens, through public facing and access features.

II. SCOPE OF WORK

The IT Consulting Firm that will be commissioned for the enhancement of the Coastal and Marine Ecosystem Management Program Information System including the other subsystems shall work closely with the DENR-BMB to make the system operational.

The Consulting Firm shall present the Alpha and Beta versions of the system on a staging server, perform further modifications as necessary, and facilitate its operationalization and implementation.

The Consulting Firm shall perform the following duties and responsibilities:

A. *Preliminary work, assessments and analyses*

1. Conduct preliminary analysis of the current system (as-is), gather the bureau's requirements and propose the improvements or alternative software and hardware solutions and applications (to-be);

2. Conduct a system use case analysis and design consultation with the DENR-BMB;

3. Submit the documentation and the proposed system design which includes but not limited to the following:

a) Process flowchart

b) Data flow diagram

c) Detailed system architecture diagram

d) Database relationship diagram

e) User-interface and system mockups

f) Platforms/Frameworks/Development Stacks to be used in the design and development of the system

g) Hardware Requirements

h) Sustainability requirements (Hosting, Domain Registration, etc)

i) Reports that can be generated

j) System Dashboard (s) (National, Regional, PENRO, CENRO)

B. *Development of actual knowledge management system*

1. Ensure user-friendliness, responsiveness and interoperability with other BMB information systems;

2. Design the system with security and encryption compliant to the standards set by Department of Information and Communication Technology (DICT);

3. Prepare and submit a work plan with details and timeframe of the development and modifications and agree with BMB on the timeline of deliverables;

4. Develop a secured information system and subsystem/s with database/repository to consolidate and store accomplishments and spatial data of CMEMP components. These subsystems may cover these functions but not limited to the following:

   a) Management of reporting system

   b) Assessment and monitoring System

   c) Decision Support System

   d) Web Mapping System

   e) Species management system

   f) Other subsystems that may emanate during the preliminary analysis

5. Export existing data to the databases and/or populate the database with available data prior to the final turn-over of the system to DENR-BMB; Populate the database with data/information provided by BMB CMD on CMEMP components including data migration from the existing CMEMP Database

6. Ensures that the system has a capability to run/work during offline mode.

7. Enhance the system based on the approved design and encouraged to use an open-source set of tools and frameworks or development stacks in:

   a) Backend: PHP 7.*, Laravel 7.* or the latest version of the framework, MySQL/PostgreSQL, PostGIS (Spatial and Geographic Objects).

   b) Frontend: Vuejs - Javascript framework for reactive data handling, blade routing, components management.

      Jquery – for DOM manipulation

      Bootstrap – for layout and theme implementation

8. Develop API's for interoperability with existing information systems such as the PA Information System (PA Database) and other information systems to be identified and developed; Ensure the database complies with the requirement of the office to generate data for reports and presentations to superiors for management decision-making purposes.

9. Present the Alpha, Beta version and its iteration through a test or staging server and shall conduct modifications based on the result of the system testing and series of consultation meetings;

C. *Technology transfer and capacity building*

   1. Recommend appropriate software and hardware required for the operations of the database/knowledge management system

   2. Recommend human resources and management structure to ensure the long-term functionality and operationality of the database/knowledge management system

   3. Develop the manuals and guidance note for DENR BMB, Regional, and Field Offices on navigating, utilizing and maintaining the database;

   4. Serve as resource persons during the regional pilot and user acceptance testings and system roll-outs that will be organized by the DENR-BMB and provide technical assistance and support during the system deployment and implementation phase;

   5. Conduct system administration training for BMB and DENR staff concerned for the maintenance and sustainability of the system;

   6. Develop a User and Administrator's Manual in consultation with DENR-BMB; and,

7. Provide one (1) year warranty of the information system against system bugs, defect, flaw or glitch commencing from the final turn-over without any additional cost to DENR-BMB.

III. OUTPUTS, DELIVERABLES AND REPORTING ARRANGEMENTS

The consulting firm is expected to accomplish and submit the following:

- Documentation of the proposed system design as specified in Scope of Work;
- Detailed Work Plan;
- Financial Proposal with cost breakdown;
- Presentation of the deployed development stack as an initial output before proceeding to the Alpha version;
- Presentation of the Alpha Version of the Online Database;
- Presentation of the Beta Version of the Online Database;
- Reports of the Alpha and Beta Testing conducted;
- Go-Live Version;
- Documentation of the approved and final system design and architecture as specified in Scope of Work;
- Compiled source code of the system;
- Presentation of the Application Programming Interface (API's)
- Administrators and Users Training with reports;
- User and Administrator Technical Manuals; and,
- Warranty Certificate (including details of manpower to be assigned for technical support)

The services of the Consulting Firm shall be engaged continuously for a period of six (6) months effective upon signing of the contract and Notice to Proceed.

IV. QUALIFICATIONS AND PROFESSIONAL REQUIREMENTS

- Consulting Firm:

  The Consulting Firm should meet the following minimum qualifications and requirements below:

  1. Should have a minimum of five (5) years experience in designing and developing web-based information systems using open-source set of tools and frameworks or development stacks listed in the Scope of Work of this TOR;

2. Should have a minimum of five (5) years experience in the design, development and implementation of similar online information systems/database;

3. Should have at least two (2) years of experience working with any government agency in the development of similar information system; and,

4. Should have substantial manpower to be able to provide a team who are expected to work on the project full time, with a minimum composition and qualifications, as follow:

Educational Background:

1. Lead Consultant/Senior Systems Analyst/Programmer – at least a MS/MA Degree in Information Technology/Software Engineering/Computer Science or other related fields

2. Junior Programmer/Systems Analyst(s) - at least a Bachelor's Degree in Information Technology/Computer Science or other related fields

3. Data Encoder – at least graduate of 2-years vocational/Diploma course in Information or Computer Technology

Work Experience:

Lead Consultant/Senior Systems Analyst/Programmer

1. With at least 5-years experience in providing leadership in the design and development of online database management information systems;

2. Should have in-depth knowledge on the concepts of systems development, database construction and management, data analysis, system versioning and report compilation; and,

3. With a good working knowledge of object-oriented design and development skill.s;

Junior Programmer/Systems Analyst(s)

1. With at least 3-years experience in designing and developing online database management information systems;

2. Should have in-depth knowledge on the concepts of systems development, database construction and management, data analysis, system versioning and report compilation;

3. Should have at least 2 years experience in MVC Framework, server-side and client-side programming; and,

4. Should have at least 2 years experience and knowledge in web mapping.

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Data Encoder

1. With at least 2 years experiences in consolidating, data cleansing or encoding; and,
2. Must be familiar in using various Microsoft Office productivity software (Word, Excel, Powerpoint)

Method of Evaluation

The proposals will be evaluated using Quality-Based Evaluation (QBE) based on RA 9184 and its IRR which will only consider the Technical Proposals in the ranking of consulting firms.

V. APPROVED BUDGET FOR CONTRACT (ABC) AND PAYMENT SCHEDULE

The approved budget cost for undertaking the enhancement of the Coastal and Marine Ecosystems Management Program Information System (CMEMPIS) or AGOS Database is **Three Million Pesos (Php 3,000,000.00)**. This amount covers the remunerations for the enhancement of the system, cost for the conduct of series of learning events for administrators and users of the system which shall be both turned over to DENR-BMB at the final acceptance of the system

Schedule of payment

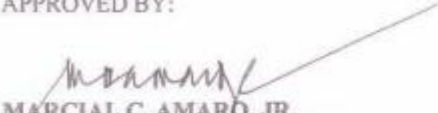| Deliverables	Tranches	Amount in Php
1. Upon Signing of the Contract and submission of the inception report with the Work Plan	15%	450,000.00
2. Upon submission and acceptance of the following: • Documentation of the proposed system design as specified in Scope of Work • Report on the deployed development stack as an initial output before proceeding to the Alpha version	25%	750,000.00
3. Upon completion and acceptance of the following: • Approved Alpha Version, conduct of the User testing with report submitted	30%	900,000.00

• Approved Beta Version, conduct of the User testing with the report submitted		
4 a. Upon completion and acceptance of the following: • Go-Live Version (Final and approved version of the system) with report submitted. • Application Programming Interface (APIs) • Documentation of the approved and final system design and architecture as specified in the Scope of Work • Compiled source code of the system • Vulnerability Assessment/Penetration Test (VAPT) Report; and • Users and Administrator Technical Manuals; b. Completion Report of the conduct of the Administrator and Users Training(s) (DENR-Field Offices) c. Warranty Certificate (including details of manpower to be assigned for technical support)	30%	900,000.00
	100%	P 3,000,000.00

VI. APPLICANT MUST PROVIDE:

- A letter of intent
- A curriculum vitae (basic information background, including current email address, mobile number, educational background, work experience, relevant accomplishments, at least three (3) character references)
- Duly registered business entity with the Securities and Exchange Commission (SEC) and/or the Department of Trade and Industry;
- Updated registration with the Philippine Government Electronic Procurement System (PHILGEPS);
- Updated registration with the Bureau of Internal Revenue (BIR);

- Updated Business Permit/License
- Three (3) sample of previous relevant works (Please provide link to the sample works)

APPROVED BY:

MARCIAL C. AMARO, JR.
Assistant Secretary for International
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