TERMS OF REFERENCE

CONSULTANCY FOR THE DESIGN AND DEVELOPMENT OF THE ENVIRONMENT AND FOREST MANAGEMENT INFORMATION SYSTEM (EFMIS)

I.BACKGROUND

The John Hay Management Corporation (JHMC) through its Information and Communications Technology Division (ICTD) has initiated a project for the development of an information system to automate some components the management of the environment and forest watershed in Camp John Hay.

Aside from the processing of Certificate of Environmental Compliance (CEC) which is integrated in the Special Economic Zone Regulatory Information System (SEZRIS), there is no other information system to support the environment and forest management initiatives of JHMC. The processes are done manually through request forms to manual reporting, and monitoring or tracking are done using logbooks and electronic spreadsheet applications such as Microsoft Excel.

With this, the JHMC is inviting all interested parties with at least three (3) years in software development business operation or experience in server-client and web-based systems to submit their proposal based on the following specifications below.

II.OBJECTIVE

The objective is to design, develop, and implement a comprehensive computerized and web-enabled information system for JHMC's environment and forest management which is user-friendly and functional. Also, to help track and manage transactions in a manner that provides the right information to the right set of people at the right time to enable efficient process flow and decision making.

III.APPROVED BUDGET FOR THE CONTRACT

Two Million Pesos (Php 2,000,000.00) inclusive of all applicable taxes.

IV.SCOPE OF WORK

1. User Requirement Assessment

   The Consultant will:

   a. Improve familiarity with the project activities through project documentation, field visits, and discussions with different stakeholders.

b. Determine detailed user requirements for the Information System based on business requirements of JHMC at various levels including:
   - Determination of stakeholders (all who have a role in data acquisition, processing, reporting, or use/decision making)
   - Determination of various types of reporting content, formats, and frequency
   - Basic information flow requirements (into, within, and out of the JHMC)
   - Additional hardware/ software/ dataset requirements.

c. Detail design recommendations in a Systems Requirement Study for the proposed EFMIS. The design should be based on close interaction with the JHMC and be flexible to incorporate changes in activities or future phases of the project/program.

2. JHMC Environment and Forest Management Information System

The JHMC has the following processes to be considered in the Information System and designated users can only access the Information System according to their role-based user privilege.

a. Forest and Biodiversity Resource Management
   - Shall integrate tagging technologies such as barcode or microchip to replace the usual practice in tree tagging using paints.
   - Shall capture, edit, monitor and delete information such as Photos, Classification, Location, Age, Scientific Names, and the like for Forest and Biodiversity Resources.

b. Pollution Control and Prevention
   - Shall capture, edit, monitor and delete vital environmental data, information and tracking system on air quality, water quality, hazardous and solid wastes management within the John Hay Special Economic Zone, as against acceptable standards or environmental targets and their analyses.
   - Shall integrate Environmental Impact Analysis / Scoring for new projects, programs or activities which JHMC will enter into.
   - Shall include compliance tracking of JHSEZ locators to environment standards
   - Shall adopt the standard format of environment reporting and plans under EMB Guidelines

c. Mapping
   - Shall integrate maps and georeferencing using the field data or information generated by the tree inventory project and other future biodiversity- related programs to produce various visual reports.
   - Shall configure maps for the system to allow zooming, panning, selecting and naming areas, selecting data points, measuring distance and moving points.
   - Shall view, add, edit and delete the internal geographic coordinate system of the maps.
   - Integration to image processing system such as Geographic Information System (GIS) and Lidar.
   - Integration of images captured through drones.

d. Nursery Management
   - Inventory, monitoring and management of plant and seedling production, to aid in the goal of healthy propagation of trees and ornamentals at the least cost possible.

e. Forest Monitoring
   - Shall integrate a tracking system using mobile devices to record, view, monitor and report observed conditions on forest patrolling and roving within Camp John Hay, to be used as evidences and data for various legitimate purposes.
   - Shall have the ability to capture, send messages/ photos and notifications/ alerts for reporting activities and forest threats such as forest conditions and wildlife, and illegal occupation, forest fires, treasure hunting activities and illicit cultivation activities in real time.
   - Shall integrate a monitoring system of reforestation and planting areas and plots within Camp John Hay to ensure healthy tree growth / stand as part of reforestation efficiency validation.

f. Administration
   i. Back Up Management
      - The system shall have the capability to automatically back up and export database and all its related files.

   ii. User Database
      - Easy management of user's information.
      - Adopt Role-Based Access Control (RBAC) to authorize system resources allocation to users based on roles.
      - System should allow easy administration of all components by the Super User/Admin.
      - Add, edit, and delete user and its password.
      - Encryption – Passwords must always be stored in an encrypted format in the database. Consultant/Developer must use universally accepted encryption standards that helps protect against the threat of malicious activity by performing real-time encryption and decryption of the database.
      - Include up-to-date CAPTCHA program as a remedy to stop spam and other intrusions wherever required.

   iii. Configurations or Settings
      - Include necessary configurations or settings as needed.

g. Reports and Analytics
   - The system shall have a filter/search management using various fields or data to create report for printing, exporting and/or downloading.
   - Report Files shall generate a comma-separated value (.csv) and/or portable document format (.pdf) file format.
   - Dashboard shall contain an analytic presentation or metrics such as charts and/or summary of important information or data that will be illustrated by the stakeholders.

h. Other Features
   - Support for all file types with ability to drag & drop files and folders. (PDF, XLS, DOCX, DWG etc.)
   - Ensure compatibility to all the browsers (Mozilla Firefox, Internet Explorer, Google Chrome, Opera, Safari).
   - Easy to use, intuitive user-experience and responsive web design
   - Mobile Friendly
   - Download and Print documents (Access restrictions)
   - Maintain and ensure that the system supports maximum concurrent users.
   - The system should run optimally (page load time below 3 seconds)
   - The system should be uploaded in the JHMC website subdomain. (efmis.jhmc.com.ph)
   - The system should provide audit trails and logs mechanism for content changes performed by system users.
   - The system shall notify the users for all activities through email.
   - Alert or notify the various stakeholders on reported activities or incidences that needs an immediate response.
   - Interoperability with Google Maps/Earth.

Features of the EFMIS will also include:

a. A web-enabled system.
   - The system will need to be accessed in a networked (off internet server), off-line (regularly downloaded) and web mode.
   - The Database needs to be structured intelligently and appropriately to ensure ease of entry, quality management, access control, processing, visualization, and reporting.
   - Appropriate security arrangements need to be made (e.g. for data backup and security, access levels, viruses, etc.).
   - The systems to be developed should be compatible with the computer specifications and operating systems of JHMC.
   - The use of various visualizations to help better understand the data is essential (e.g. graphics, project management charts, maps, photographs, etc.).

b. Information management system.
   - This is to ensure that the parameters tracked are captured, conveyed, stored, processed, visualized, and reported in an adequate and timely manner to support project status review and adaptive decision making. This will include the development of appropriate forms and business processes (e.g. process of entering and using data from various offices at appropriate intervals, conversion of some paper-based to electronic data, integrating into a centralized database, data quality management, etc.) to capture relevant administrative, financial, technical, procurement, environmental, and social data from various offices. This will require the Consultant to work closely with JHMC (through discussions, interviews, participatory stakeholder workshops, iterative designs, etc.) in order to produce data and reports in a format relevant for various kinds of reviews (e.g. ad hoc, weekly, fortnightly, monthly, half-yearly, yearly, and status-to-date type reports on

project status) at various levels. The process will include identification of target user groups and determination of what, when, and how they can contribute to the EFMIS and what, when, and how they wish to access and use appropriately-designed EFMIS reports.

3. System Requirement
   - The Consultant shall provide and turnover all EFMIS's required hardware and software including a server for faster deployment of the system and to avoid compatibility issues.
   - All software and hardware integrated in this project shall have technical resources available in the Philippines.

V.DELIVERABLES and SCHEDULE

The outputs to be delivered by the consultant include the following:

DELIVERABLE	DESCRIPTION	TIME (From Contract Signing)	PAYMENT %
Inception Report	Inception report (detailing schedule of work, key staff deployment, methodology, etc.) and Inception Workshop to discuss with JHMC	10 calendar day	15%
Systems Requirement Study	All key aspects of design (EFMIS structure, indicators, report formats, information flow, and additional hardware/ software/ data/ connectivity requirements, institutional arrangements, etc.)	20 calendar days	
Automation of the Environment and Forest Management	Preliminary design, construction and presentation of the prototype	45 calendar days	
	Evaluation and enhancement of the prototype (Iterated development until final product is satisfied)	60 calendar days	25%
	The final system is constructed, based on the final prototype.	45 calendar days	
Project Management and Monitoring System	Piloting Stage: software testing, full data entry and roll-out for selected processes	30 calendar days	15%
	Full Roll-out Stage: deployment of system in full functionality	10 calendar days	
	Post Roll-out: handholding support, proactive use surveys, bug fixes & updates	30 calendar days	15%
Documentation and Training	EFMIS documentation (design, use, and training manuals, organizational roles, etc.) and workshops	All through the key project stages and for all key deliverable	

DELIVERABLE	DESCRIPTION	TIME (From Contract Signing)	PAYMENT %
		stages – draft and final version	
Final Report	Final overview of activities, review of EFMIS use, user perspectives, issues, suggestions for improvement and sustainability	10 calendar days	30%
	JHMC Acceptance Report	10 calendar days	
DURATION OF THE PROJECT		**270 calendar days**	**100%**

VI.REPORTING AND OWNERSHIP

1. The draft reports should be submitted to JHMC for review, feedback and recommendations. The final report should have the revision and recommendations incorporated.
2. All deliverables should be in electronic (on CD/DVD – five (5) copies of draft versions and five (5) copies of final versions) and colored hardcopy formats (three (3) copies of the final version). This should include all data, manuals, illustrated training manuals, system source code etc. Workshops should accompany all key draft deliverables to ensure that any comments for improvement can be discussed and agreed in a constructive and interactive manner.
3. The reports will be accepted subject to the approval by the President and Chief Executive Officer (PCEO) upon the recommendation of the ICTD Manager and End-users.
4. JHMC shall be the absolute owner of the software including its source code and have copyright ownership. The consultant shall not replicate or reproduce or use any datasets used for this assignment without the consent of JHMC.

VII.RESPONSIBILITY OF THE CONSULTANT

1. The consultant will be responsible for all costs related to its assigned staff, including his/her salary, allowance, field accommodation, travel, transport and logistical support throughout the period of the contract.
2. Ensure timely delivery of the EFMIS.
3. Closely coordinate with the End-User during the development of the project. End-User preference as to the interface shall apply.
4. The Consultant shall be available at all times during testing and commissioning of the system.

VIII.RESPONSIBILITIES OF JHMC

The JHMC through the ASD-ICT Division shall:

1. Make available all project documents including Project Implementation Plan, Operation's Manual, preparatory studies, present database and other JHMC documents that may be required for the success of the project;
2. Prepare office facilities, telephone, internet, computers, training guides, etc. required for performing installation and commissioning of the EFMIS;
3. Facilitate participation of project staff in the pre-design workshops and final workshop;
4. Timely review and monitor all stages of the project to ensure that the deliverables of the consultant are made within the agreed timelines;
5. Work in close collaboration with other actors of the project to understand the business detailed specifications and to validate the design of the information system;
6. Participate in the overall design and ensure that the development procedures are respected and implemented *(version control, publication of iterations, bug fixing follow-up, code documentation, etc)*;
7. Assist the consultant's development team in defining the contents and duration of iterations and in managing the deliverables;
8. Ensure the quality of the developments (non-regression, coding standards, respect of the framework, etc.);
9. Run the unit-test and assist the end-users;
10. Conduct full assessment on the developed EFMIS prior to final acceptance to ensure 100% compliance by the Consultant on the Scope of Works; and
11. Conduct performance evaluation on the Consultant.

The JHMC through the EAMD-EMD Division shall:

1. Make all data available to the Consultant;
2. Immediately report to the ICTD any system failures, glitches and bugs;
3. Be a signatory to any progress billing and final billing.

IX.QUALIFICATIONS OF THE CONSULTANT AND KEY PERSONNEL

The consultant should have expertise in designing, developing and supporting implementation of a computerized and web-enabled information system. The consultant must have considerable experience in design and operationalization of information system in **similar projects**.

The Consultant will provide a team of experts with the following skill sets who shall be adequately qualified and experienced in both development projects and IT related Field to satisfactorily and timely deliver the expected outputs.

List of Key Professional Positions whose CV and experience would be evaluated:

NAME OF POSITION	KEY QUALIFICATION	EXPERIENCE
Team Leader	Deep knowledge in overall management and supervisory in software development	At least 8 years
Programmers / Web Developers	Deep knowledge in software development	At least 5 years
Documentation Specialist	Knowledge in Information System documentation	At least 3 years

X.SELECTION OF THE CONSULTANT

The proposal submitted by any interested consultant shall be evaluated using Quality Based Evaluation (QBE). Each consultant shall submit its **technical and financial proposals** simultaneously. The technical proposal shall be given a weight of one hundred percent (100%) and shall be evaluated according to the following criteria:

	EVALUATION CRITERIA	WEIGHT	MINIMUM REQUIRED SCORE
1	Profile of Development Team	50%	40%
	Highest Educational Attainment	10%	
	Highest Certifications or Trainings	20%	
	Project Experiences	40%	
	Years of IT Experiences	30%	
2	Track Record of Company	20%	16%
	Years of Operations	30%	
	Similar Combined Projects	70%	
3	Methodology and Workplan	30%	24%
	Quality of Methodology	30%	
	Workplan	30%	
	Staffing Schedule	20%	
	Conformity to the technical specifications	20%	
	TOTAL	**100%**	**80%**

Consultants shall then be ranked in descending order based on the combined numerical ratings of their technical proposals, from which the highest rated bid will be identified.

The financial proposals shall not exceed the approved budget for the contract and shall be deemed to include the cost of all taxes, duties, fees, levies and other charges imposed under applicable laws.

XI.CONTRACT TERM

The Contract shall be for a period of nine (9) months including the testing and commissioning of the EFMIS.

XII.LIQUIDATED DAMAGES:

The amount of the liquidated damages shall be at least equal to one tenth of one percent (0.001) of the cost of the unperformed portion of every day of delay. Once the cumulative amount of liquidated damages reaches ten percent (10%) of the amount of contract, the procuring entity may rescind or terminate the contract, without prejudice to other courses of action and remedies available under the circumstances.

XIII. WARRANTY

The Consultant warrants that:

1. It is expert in the field and will provide services that are consistent with the highest industry standards.
2. The developed EFMIS is in conformity with JHMC's specifications and requirements.
3. Without additional cost to JHMC, shall make modifications to the EFMIS as may be necessary to correct any defects or errors reported to the Consultant by JHMC for a period of one (1) year after the final acceptance date of the completed project.

   Reported defects or errors shall be acted by the Consultant within three (3) working days upon notice by JHMC. If the Consultant is unwilling or unable to make the required modifications then Consultant shall reimburse JHMC's reasonable expenditures for obtaining the required modifications from other Service Providers of JHMC's choice.

4. It will indemnify JHMC against liability to third parties resulting from claims that the information system or software developed infringes on or violates any patents, copyrights, or trade secrets or any JHMC claims, losses, and damages arising from the Consultant's breach of any of its obligations.