I. BACKGROUND/ RATIONALE:

Malaria cases and deaths have continuously and significantly decreased, enabling the transition of the country from malaria control to elimination. Currently, out of the 82 provinces in the country, only 8 provinces report indigenous cases, 42 previously endemic provinces reported zero malaria cases and 32 have been declared-malaria-free province. To accelerate the transition from control to elimination, the National Malaria Control and Elimination Program has developed the Philippine National Strategic Plan for Control and Elimination of Malaria, containing the strategies and interventions to be implemented in 2014-2020. One of the strategies is the strengthening of the surveillance, reporting and recording systems for malaria. Current systems running include the Philippine Malaria Information System (PhilMIS), the Philippine Integrated Disease Surveillance and Response (PIDSIR), the Field Health Services Information System (FHSIS), the Malaria Text Response System (MTRS) and the Events-based Surveillance and Response (ESR).

The malaria elimination phase requires the surveillance systems to be robust and comprehensive, with reliable real-time recording and reporting of data. This shall enable national, regional, provincial and municipality malaria teams to detect and response to malaria events, to prevent re-introduction and block local transmission. An assessment on the existing malaria surveillance and reporting system was conducted in 2015 to identify gaps and provide recommendations to develop and establish a malaria elimination responsive surveillance and information system. Progress has been made as well in the enhancement of the disease surveillance system. Much work has to be done for the development of a real-time reporting surveillance system for malaria control and elimination program that compliments the NMCEP Surveillance and Response Strategy.

In this regard, the DOH-NMCEP wishes to proceed with the development of an enhanced malaria information system that can support a malaria elimination strategy.
II. OBJECTIVES:

General Objectives:

To develop a malaria information system that can support the elimination strategy of the malaria program in laboratory registry, case registry and investigation, foci registry and investigation, surveillance reports, vector surveillance and monitoring, logistics/malaria commodity stock level monitoring, and vector control interventions, and other program indicators.

Specific Objectives:

a. To develop an online version of the malaria information system (OLMIS) that shall serve as:
   1. Official website/page of the National Malaria Control and Elimination Program accessible by the public that contains health information on the prevention and control of malaria, activities, announcements, related issuances on the NMCEP program, directory of officials, FAQs and others;
   2. Online registry for malaria cases, foci, laboratory and others;
   3. Platform for data resource of NMCEP accomplishments, data analysis and utilization;
   4. Platform for case notification of malaria and other notifiable diseases;

b. To develop a mobile compatible application;
c. To integrate the patient information to iClinicSys, iHOMIS, PIDS and ESR;
d. To integrate the data from PhilMIS to OLMIS as the official repository of data related to the NMCEP;
e. To develop a Manual of Operations (MOP);
f. To develop an action plan for the deployment and roll-out of the malaria, including conduct a training of trainers for national and regional trainers

III. SCOPE OF WORK:

Coordinate and collaborate with DPCB-IDO, KMITS and EB to:

1. Assess existing information systems that captures malaria indicators
   - Review relevant reports and assessment results.
   - Conduct situational analysis of existing systems, including documentation practices, data transmission systems, data analysis and illustration practices, data quality culture, data governance, at national and sub-national level (up to barangay level).
   - Assessment of existing systems related to malaria.

2. Develop the Online Malaria Information System

Minimum functional requirements:
i. Modules on Surveillance and Response
   a. Surveillance of suspected cases – provide a system that can receive notification/reports of suspected malaria cases from the all health facilities including the peripheral Barangay Malaria Microscopy Centers and RDT Sites by mobile-based app, sms, phone call, email and other means to report;
   b. Case Investigation – provide a system to encode and report preliminary and final results of malaria case investigations, anchored to the mandated disease surveillance system – PIDSR;
   c. Case Registry – provide a system that shall serve as database for all confirmed malaria cases;
   d. Foci Investigation – provide a system that contains results of foci investigation;
   e. Focus Registry – provide a system that shall serve as database for all malaria focus/foci area classification;
   f. Response registry: to provide a system to serve as the database for response planning, implementation and evaluation of the response impact of the activities undertaken as a response to a malaria incidence/ malaria index case;
   g. Link each case with the corresponding case form (CIF) and foci investigation form;
   h. Generate automatically Real time alerts to PMC, RMC and National Program Manager on case detection and response corresponding to their level.

ii. Modules on Case Data Management:
   a. Database for malaria cases. NMCEP reports, registries
   b. Develop summary table, graphs charts, maps, and reports;
   c. Develop dashboard including report on compliance rates on the submission of reports of the provinces and regions as required by the surveillance and response strategy.

iii. Modules on Monitoring and evaluation/Progress Tracking
   a. Malaria Case Detection – provide a system to registry online the microscopy and RDT testing and results of suspected cases
   b. Malaria Case Treatment – to provide a system to registry online the malaria treatment prescribed by health facilities
   c. Vector Control Interventions and Accomplishments – this shall keep track of the protection coverage as a result of mosquito net distribution, indoor residual spraying and other vector control intervention;
   d. Commodity and Logistics Stock Level Monitoring – provide a system that shall support monitoring of malaria commodities provided to the health facilities, hospitals, provincial health offices, and regional offices to ensure availability (zero stock-out) of malaria commodity;
   e. Quality Assurance on Diagnostics – to provide a platform for diagnostic facilities to submit slides (photo) for validation, and in return validators to send feedback on validation results.
   f. Quality Assurance on Vector Control – to provide a platform to register the activities for quality assurance on vector control
g. Budget Utilization Rate of Sub-Alloted Funds – to provide a platform to encode the status of budget utilization of sub-allotted funds to the Regional Offices for malaria control/elimination.

iv. Modules on Capacity Building and Training
   a. Database of trainings conducted at the Malaria collaboration Centers, National, Regional, Provincial and Municipal level, including details of the recipient of the training.
   b. Training alert system – an alert system that can serve as a tool to remind program managers or facilities that needs training updates and refresher courses.

v. Others
   a. Tracking and Monitoring data maintenance
   b. Generation of Reports at different levels
   c. Use of mobile applications (smart phones)
   d. Use of GIS technology (mapping)
   e. Development of dashboards, reports, trend analysis
   f. Compliance to DOH Standards (e.g. Health Facility codes, PSGC, etc.)

3. System Implementation
   a. Testing and piloting of the system
      Install and configure the system. Organize a consultation/workshop and field visits to pilot the tools and systems in selected region and to further improve the tools;
      Pilot the OLMIS in select regions/province;
      Develop guidelines on the implementation of the On—line Malaria Information System
      Formulate a training design for User’s Training
   b. Roll out the system
      Develop a roll-out plan
      Conduct training of Trainers
      Supervision of the rollout in regions and provinces
      Submit Progress Report and Final Report on the implementation of the project.

4. Warranty Period
   Provide a warranty period of three (3) months. During the warranty and system maintenance period, any program errors or bugs shall be corrected.

IV. EXPECTED OUTPUTS/DELIVERABLES

<table>
<thead>
<tr>
<th>ACTIVITY #</th>
<th>SCOPE OF WORKS</th>
<th>DELIVERABLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Define the approach or methodology to be employed to implement the project. Draft action plan describing operations, resources.</td>
<td>Inception report and final work/action plan with timelines</td>
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<tr>
<td>ACTIVITY #</td>
<td>SCOPE OF WORKS</td>
<td>DELIVERABLES</td>
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<tr>
<td>2</td>
<td>Situation analysis - review of evaluation results and other documents relevant to analyze the existing systems, including documentation/recording practices, data transmission systems, data analysis and illustration practices, data quality culture, data governance, at national and sub-national level.</td>
<td>• Situation Analysis Report</td>
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<tr>
<td>4</td>
<td>Consultative Workshop</td>
<td>• Workshop Report</td>
</tr>
<tr>
<td>5</td>
<td>Develop On Line Malaria Information System (OLMIS)</td>
<td>•</td>
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<tr>
<td>5</td>
<td>Field Pilot Testing</td>
<td>• Field Pilot Test Report</td>
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<tr>
<td>6</td>
<td>▪ Software Coding ▪ User Acceptance Testing ▪ System Presentation</td>
<td>• System Presentation Report ▪ System Test Report ▪ Certificate of Users’ Acceptance</td>
</tr>
<tr>
<td>9</td>
<td>Warranty Period (3 months)</td>
<td>• Progress Reports ▪ Project Terminal Report (Narrative and financial) ▪ Continuity and Sustainability Plan ▪ Updated Source Code and Documentation</td>
</tr>
</tbody>
</table>
Standard Requirements:

a. Technical outputs and/or system documentations shall conform to the standards, contents and/or requirements of Knowledge Management and Information Technology Service (KIMTS).

b. Progress reports are reportorial requirements for monitoring the project. Progress reports shall be submitted every month.

c. System Documentation and manuals - 3 copies in CD or USB and 2 hard copies (Final set of documentations shall be hard bound)

d. Training Manuals – 1 hardcopy of manual per participants

V. ESTIMATED DURATION OF ENGAGEMENT/PROJECT

Seven (7) months

VI. PROJECT SITE

The TA Provider is expected to work in close coordination with the DOH technical offices.

Upon completion of the system development by the TA Provided, the OLMIS will be kept and maintained at the KMITS Office - DOH Central Office, and will be managed by NMCEP.

VII. Implementing Arrangement

- Dr. Raffy Deray, Malaria Program Manager for the overall supervisor and Dr. Baquilod is the signatory of official documents for this TOR. Dr. Deray and Dr. Baquilod shall approve the final output of the TA provider.

  - The DOH has the full Intellectual Property Right (IPR) on the product of this TA.

  - The TA provider shall always coordinate with KMITS in the development of OLMIS and EB in developing the link between OLMIS and PIDS/ESR

  - The TA provider shall submit the required deliverables stated in this TOR to DOH through Dr. Baquilod for his approval and processing of the release of fund in tranches.

  - The progress report contains the update of the activities conducted

    - The final report should contain both the financial and technical reports on the approved project proposal. The financial reports to be submitted by the TA provider should include the original receipts of expenses for accounting and auditing purposes.

    - Technical Reports:

      - One copy of the technical/final report, in ring bound to be submitted to BIHC for approval

      - Upon approval of the technical/final report, 6 copies will be reproduced (1 for BIHC, 2 for DPCB, 1 for NEC and 1 for WHO)

      - Date the report is submitted on the lower right corner

      - Title of the report, the date the activity was conducted, the budget line

        And the contractual partner in the center of the front cover.

      - Side cover should also have the title of the report
VIII. Roles and Responsibilities of DOH unit(s)

1. Infections Disease for Elimination Division- Disease Prevention and Control Bureau:
   thru the National Malaria Control and Elimination Program (NMCEP) shall:
   a) Be the lead office in the development of OLMIS
   b) Ensure TA provider coordinates with the identified collaborating offices
   c) Monitor the submission of deliverables of the TA, facilitate the conduct of the consultation workshop
   d) Ensure that the OLMIS satisfies the technical and information requirements of the program
   e) Ensure that the Malaria Website/ Malaria Information System shall support the need of the Malaria Control and Elimination Program of a robust information system that can serve as platform as database that can support both surveillance and monitoring purposes of malaria program interventions and strategies at the national, regional and local levels.
   f) Conduct the monitoring and evaluation of the initial implementation.

2. Epidemiology Bureau (EB)
   a. Facilitate the linking of PIDS/R/ESR with OLMIS
   b. Facilitate the development of the case notification portal in the OLMIS for malaria and other notifiable diseases
   c. Provide inputs to the TA provider.

3. KMITS:
   a. Facilitate the development and implementation of the Online Malaria Information System (OLMIS) management
   b. Provide inputs to the TA provider for the OLMIS development and management
   c. Maintain the OLMIS system upon completion and turn-over of the TA.

4. WHO
   Provide financial support to the TA in development, testing and pilot of the systema. Provide technical guidance on the content of the OLMIS that shall be in congruence with the Malaria Global Technical Strategy and global definition and data elements of key indicators for surveillance, monitoring and evaluation.

IX. SUSTAINABILITY

The Infectious Disease Elimination Division- Disease Prevention Control Bureau maintains the operation of the Malaria Website / Malaria Information System in collaboration with the EB and KMITS.

X. DESIRED QUALIFICATIONS OF THE TA PROVIDER

Type: Institution or an Individual
Desired Qualifications:

1. Must have a good public health background
2. Should have demonstrated good knowledge on Data Management
3. With knowledge or working experience of programming languages/scripting languages (e.g. PHP Maker), database management system (e.g. MySQL)
4. With experience in developing online or web-based systems and/or client server technology system and mobile applications
5. With knowledge of communication protocols; and Understanding of file structures and interoperability protocols, AJAX and other web technologies
6. Extensive experience in conducting advocacy and training activities and application design and development
7. With experience in facilitating discussions and working with other groups, including experts and other institutions and individuals.

XI. Evaluation

- Experience and capability of the firm/individual = 40%
- Experience in the systems development/data management = 30%
- Quality of personnel assigned to perform tasks = 30%

XII. Terms of Payment

<table>
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<tr>
<th>Payment #</th>
<th>DELIVERABLES</th>
<th>PERCENT (%)</th>
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<tbody>
<tr>
<td>1</td>
<td>Upon submission and acceptance of the following:</td>
<td>15%</td>
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<tr>
<td></td>
<td>• Inception Report</td>
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<td>2</td>
<td>Upon submission and acceptance of the following:</td>
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<tr>
<td></td>
<td>• Situation Analysis Report</td>
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<td></td>
<td>• Functional Design Document</td>
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<td></td>
<td>• Technical Design Document</td>
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<tr>
<td>Payment #</td>
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<td>3</td>
<td>Upon submission and acceptance of the following:</td>
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<td>• System Presentation Report</td>
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<td>• System Test Report</td>
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<td>• Certificate of Users’ Acceptance</td>
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<td></td>
<td>• Updated Functional and Technical Design Documents (if applicable)</td>
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<td>• Source Code</td>
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<td>5</td>
<td>Upon submission and acceptance of the following:</td>
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<tr>
<td></td>
<td>• Training Design</td>
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<td>• Training Report</td>
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<td></td>
<td>• Guideline for Online Malaria Information System</td>
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<td></td>
<td>• Manual of Operations</td>
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<td></td>
<td>• Updated Functional and Technical Design Documents (if applicable)</td>
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<td>6</td>
<td>Upon submission and acceptance of the following:</td>
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<td>• Progress Reports</td>
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<td>• Project Terminal Report</td>
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<td></td>
<td>• Updated Source Code and Documentation</td>
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<td>TOTAL</td>
<td>100%</td>
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XIII. ESTIMATED COST:  
Details of budget will depend on the project proposal to be submitted by suggested TA provider in consultation with WHO- Country Office and DPCB