Terms of Reference

Consultancy for deploy, customize, pilot and maintenance of Monitoring, Reporting and Verification (MRV) system and Sri Lanka Carbon Registry (SLCR)

Procurement Entity: Climate Mitigation Action Support Project (CMASP)

1. BACKGROUND

The Partnership for Market Readiness (PMR)

PMR is a grant-based, capacity building trust fund that provides funding and technical assistance for the collective innovation and piloting of Carbon Pricing Instruments (CPIs) that reduce greenhouse gas (GHG) emissions. The Partnership brings together experts and stakeholders from developed and developing countries to discuss CPIs, South-South exchange, collective innovation for pilot efforts, and the implementation and scale-up of financial flows.

The Government of Sri Lanka (GoSL) became an Implementing Country Participant of PMR, following the presentation of its Organizational Framework for Scoping of PMR Activities at the PA meeting in Lima, Peru on April 26 – 29, 2016. Upon GoSL’s request, the World Bank is currently executing the preparation grant in close consultations with Sri Lanka’s PMR focal point, the Climate Change Secretariat (CCS) under the Ministry of Environment and Wildlife Resources (MEWR). GoSL submitted its Market Readiness Proposal (MRP)\(^1\) to the Partnership Assembly (PA) in December 2017, which laid out in detail why, what and how PMR resources would be used to support the country’s planned activities to develop the proposed CPI and market readiness components. The MRP has now been approved by the PA, and a grant agreement is currently being drawn up to allocate the US$ 3 million funding for the MRP implementation phase.

The MRP implementation is being carried out by the World Bank and MEWR in Sri Lanka. Most of the components which were executed by the World Bank have been almost completed and CMASP of MEWR is being implemented the components assigned and this consultancy, consultancy for customized, deploy, pilot and maintenance of Monitoring, Reporting and Verification (MRV) system and Sri Lanka Carbon Registry (SLCR) is one of components. Establishment of national MRV system and Sri Lanka Carbon Registry (SLCR) is identified as a timely need for the country since the country committed to mitigate greenhouse gas emissions, implement Carbon Pricing Instruments (CPIs) and enhance the Sri Lanka Carbon Crediting Scheme (SLCCS).

Sri Lanka’s climate change context

Sri Lanka is a rapidly growing lower middle-income country with a total population of 21.0 million people and per capita income of USD 3,741 in 2019\(^2\). Sri Lanka is considered to be, in many respects, a development success story. For example, growth has averaged over 5 % per year in the past decade and poverty rates have declined dramatically from 8.9% in 2009 to 4.1% in 2016\(^3\).

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\(^1\)The MRP may be found here: [https://www.thepmr.org/country/sri-lanka](https://www.thepmr.org/country/sri-lanka)

\(^2\) Annual Report, Central Bank of Sri Lanka, 2019

\(^3\) Annual Report, Central Bank of Sri Lanka, 2019
Sri Lanka’s GHG emission in 2012 was approximately 0.78 tCO₂ per capita, far below the world average value of 4.44 tCO₂. According to Sri Lanka’s Second National Communication (SNC) on Climate Change Submissions to UNFCCC, the energy sector, which accounted for 61.4% of total GHG emissions in 2000, represented the largest share of total national GHG emissions.

Sri Lanka has set the following GHG emission reduction targets under its Nationally Determined Contributions (NDCs) for the Paris Agreement: (a) By 2030, reduce GHG emissions in the energy sector against Business As Usual (BAU) scenario by 4% unconditionally and an additional 16% conditionally; and (b) by 2030, reduce GHG emissions against BAU scenario by 10% in other sectors by 3% unconditionally and an additional 7% conditionally.

Under the NDCs, GoSL has mapped out a comprehensive set of actions to reduce emissions in the five priority sectors, namely, energy (specifically focusing on electricity generation), transport, industry, forestry and waste; and has already developed a number of policies and plans to support their implementation. GoSL is actively seeking opportunities to strengthen the role of CPIs to enhance the efficiency of achieving its NDCs; and has proposed to leverage PMR’s resources to conduct a range of analytical/technical work to support this goal. Activities under the five building blocks (BBs) of the MRP are summarized in Figure 1.

2. VISION FOR AN INTEGRATED NATIONAL MRV SYSTEM AND SLCR

Quantifying GHG emissions reduction through a robust MRV system is an indispensable pre-requisite to the monetization of carbon assets and participation in carbon markets. It also has stand-alone benefits in addition to supporting CPIs, such as reporting and tracking progress towards NDC goals. Sri Lanka recognizes the need to address the current complexities and disaggregation of MRV systems, and build the necessary MRV infrastructures to support emission reductions and emission profiles in all mitigation NDC sectors, namely energy, transport, industry, forestry and waste sectors; tracking and reporting of NDC implementation progress; and implementation of the Sri Lanka Carbon Crediting Scheme (SLCCS), which is a nascent national voluntary carbon offset scheme launched in 2016. Against this backdrop, BB3 (fig. 1) aims to build on existing experience and ongoing initiatives to (a) design an integrated MRV system that could cover GHG emissions

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and emission reductions at the project, program, sector and national level; and (b) implement/pilot the system at the project/facility level.

Under BB3, Climate Change Secretariat under the MEWR aims to design a national carbon registry system (named as Sri Lanka Carbon Registry (SLCR)) for maintaining the details of the monitoring reports, verification reports and issuance and the transactional features of carbon units. The registry is an essential tool through which the success of the mechanism will be measured and improved. A carbon registry is required to perform two basic functions (i) determine the quantity of carbon units held by account holders and (ii) enable the exchange of carbon units between account holders. It will be used for all data collecting, checking and reporting, storing compliance data and identifying any cases of enforcement. It would be tracking the emissions and trading activity for registered users over the life of a particular scheme.

3. OBJECTIVES OF THE CONSULTANCY

The overall objective of the building block 3 (BB3) is to design and pilot the national integrated Monitoring, Reporting and Verification (MRV) system and Sri Lanka Carbon Registry (SLCR) which have multiple benefits such as tracking and reporting the progress of NDC goals, facilitate the monetization of carbon assets and functions of the Sri Lanka Carbon Crediting Scheme (SLCCS).

The scope of the consultancy mainly has six tasks, namely, (i) Study and understand the existing MRV and SLCR systems introduced by the World Bank which is built on Microsoft .Net platform; with the assistance of the respective system developers, (ii) Deploy the system with the World Bank IT team, (iii) Customize and modify the system according to the national requirements and maintain of the systems; (v) Piloting MRV system in identified sectors; (vi) Training of MRV and SLCR training team; (vi) Piloting of SLCR at CCS and Registry Operator; and recommendations for further improvement of national integrated MRV system and SLCR.

4. SCOPE OF THE CONSULTANCY

Task 1: Study and Understand the MRV system and SLCR systems introduced by the World Bank

The consultancy firm is required to study and understand the software systems deployed that are built in ASP.NET with C# and Microsoft SQL server database to assist the deployment and maintenance in Sri Lanka. This is necessary to customize the system to fit local requirements and provide necessary maintenance services in case any bugs are identified during the piloting phase and beyond. The consultancy firm is required to sign the non-disclosure agreement with the MEWR before accessing the coding of both systems so as for them to support maintenance of the system.

5 GHG mitigation activities which are carried out at a facility or many facilities as a project. Eg: VFD installation in tea factories (i.e. facilities) to reduce electricity use under the NAMA project

6 GHG mitigation activities which are carried out at a facility. Eg: Fuel switching to biomass and installation of Solar PV in a manufacturing facility

7 To facilitate smooth implementation of the PMR activities, BB3 will focus on foundational issues in the early stages - such as project/facility-level data collection and institutional and technical capacity strengthening - which are needed for accounting and reporting purposes, regardless of the CPIs selected. The scope of the MRV framework may be expanded at a later stage, once the additional CPI(s) has been selected under BB2 and BB4 analyses.

8 A person or an organization who has an account in SLCR and/or TR wishes to sell or buy carbon credits
**TASK 2: Deploy, customize and modify software system according to the national requirements**

- The consultancy firm should customize the MRV and SLCR systems which will be provided by the World Bank (with the source code) according to the requirements already identified in previously carried out MRV and SLCR needs assessments and functional and technical specifications assessments.
- The cloud-based system will be hosted in cloud servers in Information and Communication Technology Agency (ICTA) and server software infrastructure facilities will be provided by CMASP of MEWR. Consultancy firm should undertake maintenance of the system (which includes operating system management, program management and app management) for 3 years period from the date of system commissioning. In this respect, a service agreement will be signed between the consultancy firm and MEWR.
- The consultancy firm should update the existing documents including user manuals and operations manuals for the customized MRV system including data gathering templates of the deployed MRV and SLCR systems based on its operation.

**TASK 3: Testing and Piloting of MRV system in identified sectors**

- Test and pilot the MRV system with relevant templates which use to feed data to the MRV system, templates to gather raw data from data sources, guidelines and tools (which were developed in MRV training component) in selected sectors. Sectors/sub sectors will be selected by Technical Advisory Committee in consultation with relevant mitigation experts
- Test and pilot MRV data processing, analysis reporting and verification for the CCS staff
- Draft a Memorandum of Understanding (MoU) to be signed between CCS and relevant agencies (e.g. ministries, departments, institutes, industry clusters, industries, and NGOs)
- Some customization needs will be identified during the piloting process as this will be best achieved through hands-on application of the system. This customization will include for e.g., a) any new/additional reports CCS wants on top of the reports that the system already has; b) any need for connecting to other existing/planned systems by others. In addition, CCS team can also identify such additional needs, based on the country and sector experience.

**Task 4: Training of trainers for MRV training expert team**

- The consultancy firm should work with the training consultant (s) hired separately and support, as needed mainly with any issues related to accessing the web-based system, its proper operation etc. The consultancy firm should provide comprehensive trainings and demonstrations on operating the MRV system and SLCR to the CCS staff, relevant stakeholders and the MRV and SLCR training team.

**TASK 5: Testing and Piloting of SLCR at CCS and registry operator**

- Test and pilot SLCR (includes both carbon registry and transaction registry) for CCS staff
- Test and pilot the SLCR system for Transaction Registry operator(s)

**TASK 6: Recommendations for further improvement of national integrated MRV system and SLCR**

- Provide recommendations for further improvement and long-term sustainability of national MRV system and SLCR
- Provide recommendations for any further requirements for training, capacity building and competence development for officers at climate change mitigation related activity data sources
- Provide recommendations for any technical, policy and legal improvements
5. **DELIVERABLES**

Deliverables will include:

a. Deployment of existing MRV system and SLCR in servers at Information and Communication Technology Agency, Sri Lanka (ICTA)
b. Configuration of computer hardware and software
c. Completion of required modifications as expected
d. Completion of MRV testing and piloting in selected sectors and summary report on MRV testing and piloting. The summary report should include sectors and sub sectors covered, constraints for MRV implementation and possible measures to overcome those barriers and constraints
e. Completion of SLCR testing and piloting and summary report on SLCR
f. Comprehensive report on recommendations on further improvement of national integrated MRV system and SLCR (which includes Sri Lanka National Registry and Transaction Registry)
g. Draft MoUs prepared which will be signed between CCS and MRV data sources
h. Completion of Training programs for MRV and SLCR training team

The project will be delivered within 20 weeks of the date of contracting. The proposed project timeframe, milestone and budget is below. Dates are provided for indicative purposes and may be subject to change.

<table>
<thead>
<tr>
<th>Deliverables</th>
<th>Expected delivery date (as weeks following signature of contract)</th>
<th>Payment schedule</th>
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<tbody>
<tr>
<td><strong>Deliverable 1:</strong> Inception report which includes not least proposed methodology, workplan, stakeholder engagement plan, team composition etc., (The consultancy firm should provide details of customization based of the needs assessment; and functional and technical specification reports)</td>
<td>03rd week</td>
<td>10%</td>
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<td><strong>Deliverable 2:</strong></td>
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<td>2.1. Completion of systems deployment and demonstration to CCS/PMU</td>
<td>07th week</td>
<td>10%</td>
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<td>2.2. Submission of specific measuring/monitoring requirements and data recording templates for each subsector/project/facility level</td>
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<td>2.3. Sectoral stakeholder consultation workshops (number of workshops to be decided by CCS/PMU) to identify customization needs</td>
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<td>2.4. Submission of draft Memorandum of Understanding (MoU) between CCS and relevant agencies</td>
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<td><strong>Deliverable 3:</strong></td>
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<td>3.1. Completion of customization and demonstration to CCS/PMU</td>
<td>12th week</td>
<td>20%</td>
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<td>3.2. Completion of comprehensive trainings (2 on MRV, 2 on SLCR). Trainings should be provided to MRV and SLCR training firm, CCS staff and relevant stakeholders.</td>
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<td>3.3. Updated user manuals and operations manuals for the customized MRV system including data gathering templates of the deployed MRV and SLCR systems</td>
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<td>3.4. Completion of testing and piloting MRV data processing, analysis reporting and verification for the CCS staff</td>
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3.5. Completion of testing and piloting SLCR (includes both carbon registry and transaction registry) for CCS staff
3.6. Completion of testing and piloting the SLCR system for Transaction Registry operator(s) and submission of test reports
3.7. Schedule for piloting programs to be conducted next 06 weeks (piloting sectors to be finalized in consultation with CCS and advisory committee)

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<th>Deliverable 4:</th>
<th>18th week</th>
<th>20%</th>
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<tbody>
<tr>
<td>4.1. Completion of first 06 piloting programs and submission of summary report (list of participants and institutes, summary of feedback of users)</td>
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<tr>
<td>4.2. Completion of second 06 piloting programs and submission of summary report (list of participants and institutes, summary of feedback of users)</td>
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<tr>
<td>4.3. Completion of third 06 piloting programs and submission of summary report (list of participants and institutes, summary of feedback of users)</td>
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**Deliverable 5:** Completion report on MRV and SLCR piloting including following components.
1. Recommendations for further improvement and long-term sustainability of national MRV system and SLCR
2. Recommendations for any further requirements for training, capacity building and competence development for officers at climate change mitigation related activity data sources
3. Recommendations for any technical, policy and regulatory improvements
4. User Acceptance Testing (UAT) report

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<tr>
<th>Deliverable 6: Three years maintenance agreement for system maintenance and both major and minor modifications</th>
<th>20%</th>
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6. **ORGANIZATION AND LOGISTICS**

- The assignment shall start immediately following signing of the contract
- The composition of the consultancy firm will include team leader/IT project manager with IT experts, Technical coordinator and climate change mitigation sector experts. The team should ensure smooth communication and facilitation of the work with MEWR, relevant government ministries and agencies, stakeholders, and the World Bank.
- PMU of MEWR (procuring entity) will facilitate to coordinate with stakeholders in government sector and provide necessary reports of other consultancies which have been already completed under CMASP and other projects. CCS/PMU of MEWR will not provide any human resources, office space, office furniture, computer equipment, the internet and other telecommunication facilities, vehicles or transport services and any other equipment or service which would be required to provide this consultancy service.
- Consultancy firm and its consultants shall cover their travel, accommodation and per diem expenses which will be occurred for performing the consultancy themselves. Dates and venue(s) of the meetings are to be determined in consultation with the CCS/PMU of MEWR.
The consultancy firm should pay an expert input allowance for the professionals who participate and provide their technical inputs and comments for the improvement of the task carried out by the consultancy firm.

The consultancy firm should bear the travelling cost of stakeholders/experts and Technical Advisory Committee members. All the training sessions and stakeholder meetings should be held in a convenient place with all the logistics arrangements.

Deliverables must be satisfactory to MEWR. It is advisable to submit some of sub deliverables before the given deadline to avoid unnecessary delays.

The consultancy firm will provide biweekly updates of tasks carried out and participate in regular meetings or teleconference discussions upon request from CCS/PMU of MEWR.

The consultancy firm is required to make a request for MEWR’s participation in meetings or workshops at least 14 days in advance. Schedules for conducting workshops and meetings will need to be agreed with the CCS/PMU of MEWR.

7. **TIME FRAME OF WORK**

The duration of the assignment will be 20 weeks upon the signature of the contract.

Estimated Contract Start Date: (this will be added later)
Estimated Contract Completion Date: (this will be added later)

8. **REQUIRED CONSULTANCY FIRM(S) AND STAFF QUALIFICATIONS**

The consultancy firm shall at minimum demonstrate the following qualifications of the firm and team of experts to perform the required services. The consultancy firm should be able to score 60 percent from the total allocated marks for the consultancy firm (Mandatory).

**Consultancy Firm**

- Scope of the consultancy firm as mentioned in the business registration/certificate of incorporation;
- Legal status and administrative setup;
- Minimum five (05) years of experience in Microsoft .NET web solutions development projects;
- Completion certification of minimum five (05) projects in Microsoft .NET based web applications with Microsoft SQL server integration. (completion certificates should be submitted);
- Experience in involvement of international projects or foreign funded projects in government sector
- Experience in climate change related activities/projects. Experience of undertaking similar type of consultancies will be an advantage;
- Financial capacity and recent audited accounting reports of last consecutive three (03) years;
- IT firm should consist of Microsoft certified resource persons.

The firm shall be demonstrated above experiences if necessary.
Team Leader/IT Project Manager

- Master’s degree or higher academic qualification in computer science or IT related discipline or equivalent qualification obtained from a university/institution recognized by University Grants Commission
- Minimum five (05) years of experience in Microsoft .NET web solutions development projects (mandatory requirement)
- Minimum seven (07) years of working experience in IT project management, out of which four (04) years should be with the current firm
- Minimum four (04) years of experience in conducting training and capacity building for the IT software implementation
- Minimum four (04) years of experience in working with diverse range of stakeholders including government and private sector agencies
- Excellent capacity to communicate and carry out sectoral and plenary consultations with key decision-makers such as relevant ministries, and national and local government agencies, and key stakeholder in the private sector, NGOs, and the academia
- Flexibility to address multiple tasks as required during the course of the assignments in the ToR
- Fluency in English and preference will be given for proficiency in local languages.

Technical Coordinator (Environment Consultant)

- Master’s degree or higher academic qualification in environmental sciences/Environment management, Environment engineering, agriculture or other relevant discipline, offered by an institute recognized by the University Grant Commission (Mandatory Requirement)
- Minimum five (05) years of working experience in climate change related activities or projects, out of which three (03) years of experience should be in technical coordination
- Minimum five (05) years of experience in working with diverse range of stakeholders including government and private sector agencies
- Minimum two (02) years of experience in coordinating training and capacity building in climate change
- Minimum two (02) years of experience in climate change related data management systems (computerized or manual), data gathering and reporting in Sri Lanka
- Excellent capacity to communicate with key stakeholder in the private sector, NGOs, and the academia
- Flexibility to address multiple tasks as required during the course of the assignments in the ToR
- Fluency in English and preference will be given for proficiency in local languages.

Four (04) Sectoral Experts for Climate Change Mitigation

Sectors: Energy, AFOLU\(^9\), Waste and IPPU\(^10\)

- Master’s degree or higher qualification in environmental sciences, engineering, agriculture, forestry, science, management or other relevant discipline, offered by an institute recognized by the University Grant Commission

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\(^9\) AFOLU: Agriculture, Forestry and Other Land Use

\(^10\) IPPU: Industrial Processes and Product Use
• Minimum five (05) years of working experience in climate change related activities or projects, out of which two (02) years should be specialized to one out of four above mentioned sectors
• Minimum four (04) years of experience in conducting training and capacity building programs, out of which two (02) years should be in climate change mitigation
• Minimum three (03) years of experience in working with diverse range of stakeholders including government and private sector agencies
• Experience on climate change mitigation related data management systems (computerized or manual), data gathering, data analysis and reporting in Sri Lanka will be an added qualification
• Excellent capacity to conduct customized trainings for stakeholders in various sectors
• Fluency in English and preference will be given for proficiency in local languages.

SQL Database Specialist

• Bachelor’s degree in Information Technology, Computer Science, Computer Engineering or equivalent degree, offered by an institute recognized by the University Grant Commission
• Minimum five (05) years of experience in database administration
• Good interpersonal skills
• Fluency in English and local languages

Database developer

• Bachelor’s degree in Information Technology, Computer Science, Computer Engineering or equivalent degree, offered by an institute recognized by the University Grant Commission
• Minimum five (05) years of experience in database development
• Good interpersonal skills
• Fluency in English and local languages

Web applications developers (03)

• Bachelor’s degree in Information Technology, Computer Science, Computer Engineering or equivalent degree, offered by an institute recognized by the University Grant Commission
• Minimum five (05) years of experience in web applications development
• Specialized in C# .NET
• Good interpersonal skills
• Fluency in English and local languages

Server Administrator

• Bachelor’s degree in Information Technology, Computer Science, Computer Engineering or equivalent degree, offered by an institute recognized by the University Grant Commission
• Minimum seven (07) years of experience in server administration
• Experience in IIS web server administration
• Good interpersonal skills
• Fluency in English and local languages
Testers (02)
- Bachelor’s degree in Information Technology, Computer Science, Computer Engineering or equivalent degree, offered by an institute recognized by the University Grant Commission
- Minimum five (05) years of experience in Microsoft .NET web application testing
- Certification in software quality assurance
- Good interpersonal skills
- Fluency in English and local languages

Software Engineers (02)
- Bachelor’s degree in Information Technology, Computer Science, Computer Engineering or equivalent degree, offered by a university/institute recognized by the University Grant Commission
- Minimum five (05) years of experience in web software development in Microsoft .NET
- Good interpersonal skills
- Fluency in English and local languages

Software Security Expert
- Bachelor’s degree in Information Technology, Computer Science, Computer Engineering or equivalent degree, offered by an institute recognized by the University Grant Commission
- Minimum five (05) years of experience in web solutions security
- Microsoft security certification
- Good interpersonal skills
- Fluency in English and local languages

9. REPORTING LANGUAGE

The reporting language is English. All the reports shall be submitted electronically on or before the given deadline. Reports will be reviewed by a Technical Evaluation Committee (TEC) compromise with a team of experts and payment for each deliverable will be made upon recommendation of the TEC. Hardcopies of the finalized reports shall be submitted once CCS accepts the report after reviewing and corrections.

10. CONFIDENTIALITY MATTERS

The consultancy firm along with its employees, consultants and experts will be subject to a confidentiality arrangement that will outline restriction of information and data gained throughout the assignment with other or third parties. All the data and information collected for this purpose should be handed over to the CCS.

11. COORDINATION WITH THE MINISTRY OF ENVIRONMENT AND WILDLIFE RESOURCES (MEWR)

- The consultancy firm will require to ensure that the firm is fully guided by the MEWR’s PMR Core Team and this core team is informed of the consultancy firm day-to-day operations, specifically at all meetings being held with relevant line ministries;
- The consultancy firm requires to make a request for the MEWR’s participation in meetings or interviews, at least two weeks in advance.
12. PRIMARY CONTACTS

An officer of the CCS/MEWR has been appointed as the contact point of CMASP to maintain the sustainability of consultancy services after completion of the project period. The Project Director of the Climate Mitigation Action Support Project and Director of the Climate Change Secretariat can be contacted by email, cmasprojectsll@gmail.com and climatesec@gmail.com respectively.

13. RESPONSIBILITY OF THE CONSULTANCY FIRM

Consultancy firm should strictly adhere to the given deadlines of the deliverables. Failure to submit deliverables or delaying of submitting deliverables on the given deadline, a penalty of 0.5% will be charged per day for maximum 30 days from the particular payment of the deliverable and afterword consultancy will be terminated.

All information, data and reports obtained from the CCS and respective parties in the execution of the services of the consultancy shall be properly reviewed and analysed by the consultancy firm. All such information, data and reports shall be treated as confidential.

Three years system maintenance from date of commissioning and updating user and operations manuals, as needed during the maintenance period. The consultancy firm should have a service agreement with CCS/MEWR with necessary arrangements (i.e. a bank guarantee etc.).

MEWR will have the intellectual property rights of all the deliverables of this consultancy service, including web based MRV and SLCR systems, training modules and training materials.