




**Validation report form for
CDM programme of activities
(Version 03.0)**

Complete this form in accordance with the instructions attached at the end of this form.

BASIC INFORMATION

Title of the programme of activities (PoA)	Restoration of degraded mangroves as a climate change mitigation and adaptation strategy in Asia
Version number of the validation report	2.0Aa
Completion date of the validation report	03/06/2020
Version number of PoA-DD to which this validation report applies	2.1
Date when PoA-DD was uploaded for global stakeholder consultation	29/03/2019
Coordinating/managing entity (CME)	EcoEye CO. LTD
Host Parties	Republic of the Union of Myanmar
Applied methodologies and standardized baselines	AR-AM0014 (Afforestation and reforestation of degraded mangrove habitats), version 3.0
Mandatory sectoral scopes	14.1
Conditional sectoral scopes, if applicable	N/A
Name and UNFCCC reference number of the DOE	RINA Services SpA (RINA – 0037)
Name, position and signature of the approver of the validation report	Laura Severino (Authorized officer signing for the DOE) Head of Certification Innovation & Sustainability Unit 

SECTION A.Executive summary**>> Purpose, general description and location of the project activity.**

The proposed PoA involves restoration/reforestation of degraded mangrove habitat and afforestation of grassy land accretions degraded mangrove habitats along the coastal and intertidal areas of Myanmar. Apart from the restoration and afforestation activities of mangroves, the other important objective of the programme is to contribute positively to sustainable development of the PoA area and aligns itself with a number of the Sustainable Development Goals (SDGs) including goals 1, 2, 3, 8, 13, 14 and 15.

The objective of the Validation is to have an independent evaluation of a large scale PoA project activity with each generic large scale component project activity (CPAs) and any CPA proposed to be included in the PoA by a designated operational entity against the requirements of the CDM as set out in decision 3/CMP.1, its annex and relevant decisions of the COP/MOP, on the basis of the Programme Design Document (POA-DD) and of the Component Project Activity Design Document (CPA-DD). In particular, the demonstration of additionality of the PoA as a whole, the eligibility criteria for inclusion of a CPA in the PoA, the baseline determination for each generic CPA, the monitoring plan for each generic CPA, the estimated emission reduction from any CPA proposed in the project and the programme's compliance with relevant UNFCCC requirements and host Party criteria are validated in order to confirm that the programme design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all CDM PoA projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

The validation scope is to review the PoA-DD/CPA-DD against the UNFCCC criteria for CDM. UNFCCC criteria for CDM refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, the procedures for registration of programme of activity as a single CDM and the subsequent decisions by the CDM Executive Board. Validation is not meant to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

Final Conclusion:

In conclusion, it is RINA's opinion that the programme of activity "Restoration of degraded mangroves as a climate change mitigation and adaptation strategy in Asia", as described in the PoA-DD version 02.1 of 02/06/2020, meets all relevant requirements for CDM activities and all relevant host Party criteria and correctly applies the baseline and monitoring methodology "AR-AM0014", "Afforestation and reforestation of degraded mangrove habitats", version 03.0 of 04/10/2013. Hence, RINA requests the registration of the project as a CDM programme of activity.

SECTION B.Validation team, technical reviewer and approver**B.1.Validation team members**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interview(s)	Validation findings
1.	Team Leader and Technical Expert	IR	Menon	Rekha	RINA India	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2.	Validator	IR	Nambiar	Dhanya	RINA India	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

B.2. Technical reviewer and approver of the validation report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Principe Branco Saettoni	Geisa Maria	RINA Brasil Serviços Técnicos Ltda
2.	Technical Expert	ER	Beck	Talita	RINA Brasil Serviços Técnicos Ltda
3.	Approver	IR	Severino	Laura	RINA Central Office

SECTION C. Means of validation**C.1. Desk/document review**

>> The PoA-DD, version 01 of 23/03/2019, version 02 of 07/11/2019 and version 2.1 of 02/06/2020 /01/, in particular the applicability of the methodology, the baseline determination, the additionality of the project activity, the starting date of the project, the monitoring plan ,were assessed as part of the validation.

C.2.On-site inspection

Duration of on-site inspection: 14/05/2019 to 16/05/2019				
No.	Activity performed on-site	Site location	Date	Team member
1.	Assessment on the justification of choice of the methodology, Additionality Identification of barrier, Operational and management structure, Project starting date and start of crediting period, Land ownership documents, benefit sharing agreement , ER calculations, eligibility criteria for inclusion of CPAs, interaction with stakeholders	WIF office, Yangoan	14/05/2019 and 16/05/2019	Rekha Menon & Dhanya Nambiar
2	Project boundary, land use classification Baseline scenario, Technology employed, species selection, planting techniques, survival rate, Environmental and socio economic impacts, sample plot calculation , visiting the sample plots , monitoring plan and interaction with local villagers	Site at Letkhookone village	15/05/2019	Rekha Menon & Dhanya Nambiar

C.3.Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Fjortoft	Dr. Arne	Secretary General, WIF	14/05/2019 to 16/05/2019	Land ownership, Project boundary, Baseline scenario, Additionality, Operational and management structure, Project starting date and start of crediting period Technology employed, Storage of data, calibration , QA/QC procedures Environmental and social impacts	Rekha Menon & Dhanya Nambiar
2.	Maung	Win	Project Manager, WIF			
3	Ni	Bo	Managing Director, WIF			
4.	Aung Myont	Aung	Deputy Project Manager, WIF			
5	Vanniarachchy	Suraj A.	Carbo consultant, WIF			
6	Sriram	Tara	Consultant, VNV Advisory	14/05/2019 to 16/05/2019	Contract documents between CME and CPA implementer, benefit sharing agreement, ER calculations, justification on the	Rekha Menon & Dhanya Nambiar

					methodology choice.	
7	Toe	Theim	Director, Forest Deapartment, Yangoan	16/05/2019	Land ownership, forest laws, clearances and approvals required, host country EIA requirement, benefit sharing agreement	Rekha Menon & Dhanya Nambiar

C.4.Sampling approach

>> Validation of the proposed PoA is not focused on assessment of actual monitoring activity or data verification, so sampling approach was not applied to validate proposed program of activity. However, for each CPA the ex-ante stratification of the project will be done by year of planting. Such stratification is selected to increase the measuring precision without increasing unnecessary costs.

The project will adopt the following sampling framework.

The number of samples and sample size was determined using "Calculation of the number of sample plots for measurements within A/R CDM project activities (Version 02.1.0)" /26/.

Initial estimate of number of plots is done with targeted precision level for biomass estimation within each stratum at +/- 10% of the mean at a 90% confidence level. The number of required plots (n) was calculated using the following equation:

$$n = \frac{N * t_{VAL}^2 * \left(\sum_i w_i * s_i \right)^2}{N * E^2 + t_{VAL}^2 * \sum_i w_i * s_i^2}$$

Where;

n Number of sample plots required for estimation of biomass stocks within the project boundary; dimensionless

N Total number of possible sample plots within the project boundary (i.e. the sampling space or population); dimensionless

t_{VAL} Two-sided Student's t-value, at infinite degrees of freedom with 90% confidence level; dimensionless

w_i Relative weight of the area of stratum i (i.e. the area of stratum i divided by project area); dimensionless

s_i Estimated standard deviation of biomass stock in stratum i ; t d.m. (or t d.m. ha⁻¹)

E Acceptable margin of error in estimation of biomass stock within the project boundary; t d.m. (or t d.m. ha⁻¹), i.e. in the units used for s_i

i 1,2,3,..... Biomass stock estimation strata within the project boundary

The number of plots allocated to each stratum was calculated as follows;

$$n_i = n * \frac{w_i * s_i}{\sum_i w_i * s_i}$$

Where;

n_i Number of sample plots allocated to stratum i ; dimensionless

- n Number of sample plots required for estimation of biomass stocks within the project boundary;
dimensionless
- w_i Relative weight of the area of stratum i (i.e. the area of stratum i divided by project area);
dimensionless
- s_i Estimated standard deviation of biomass stock in stratum i ; t d.m. (or t d.m. ha⁻¹)
- $i=1,2,3,\dots$ Biomass stock estimation strata within the project boundary

Sampling plot area: 10 m x 10 m plots of 0.01 ha (100m²) will be laid out.

A permanent sampling plot will be established and measured periodically for monitoring purposes. Equations (1) and (4) in methodological tool 'Calculation of the number of sample plots for measurements within A/R CDM project activities' (version 02.1.0) will be used to calculate the number of plots for each stratum. The standard deviation of each stratum (s_i) is conservatively set as 30% of the living biomass at the end of the crediting period. The acceptable margin of error was set as the default value equal to 10% of the mean biomass stock within the project boundary, with 90% of confidence level.

The validation team could verify that the tool used in calculation of sample plots provided in the PoA-DD and confirms that it is in-line with the latest available tool for calculation of sample plots.

C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of validation of compliance	No. of CL	No. of CAR	No. of FAR
Programme of activities			
Identification of the programme type			
General description of the PoA		1	
Management system	1		
Demonstration of additionality of the PoA	1		
Start date and duration of the PoA	1		
Environmental impacts		1	
Socio-economic impacts		1	
Local stakeholder consultation	1		
Sustainable development co-benefits	1		
Approval		1	
Authorization		1	
Modalities of communication		1	
Global stakeholder consultation			
Generic component project activities			
General description of generic CPA	1		
Application and selection of methodologies and standardized baselines			
• Application of methodologies and standardized baselines	1		
• Deviation from methodologies and/or methodological tools			
• Clarification on applicability of methodology, tool and/or standardized baseline			
• Project boundary, sources and GHGs	1		
• Baseline scenario			
• Estimation of emission reductions or net anthropogenic removals			
• Monitoring plan		1	
Crediting period type and duration			

Eligibility criteria for inclusion of CPAs		1	
Others (please specify)			
Total	8	8	

SECTION D.Validation findings

D.1.Programme of activities

D.1.1.Identification of programme type

Means of validation	The Co-ordinating Managing Entity has identified the type of CDM-PoA.
Findings	/
Conclusion	As per the “CDM project standard for programme of activities”, the Co-ordinating Managing Entity has identified the PoA to include only large scale A/R CPAs. RINA confirms that the proposed CDM PoA will include only A/R CPAs.

D.1.2.Description of PoA

Means of validation	<p>The purpose of the PoA is to reforest/ restore degraded or severely degraded mangrove habitats as well as afforest grassy land accretions within degraded mangrove habitats along the coastline of the Republic of the Union of Myanmar, resulting in increased area under mangroves.</p> <p>It is checked and confirmed that the measure or goal of the programme is reforestation/restoration of degraded mangrove habitats and afforestation of grass land accretions with the goal of mangrove restoration, coastal protection, sustainable livelihoods and development of local communities, biodiversity improvement and climate mitigation through sequestration of carbon in woody biomass and soils.</p> <p>RINA validation team checked that the CME has developed a framework agreement for the proposed PoA and the same is also approved by the CPA implementer, also the PP /30/. The framework agreement consists of general information on the PoA, organizational structure, role and responsibility, nominating CPA implementer, training, CPA inclusion, data management, QA/QC, monitoring, recording & document control process and measures for continuous improvements of the CME management system. RINA team also interviewed CME to verify understanding about CDM PoA framework and CME's internal process. As a result, validation team concluded that CME has appropriate structure to carry out the proposed PoA. Validation team also interviewed CPA Implementer (World View International) staff and identified that:</p> <p>(a) Organizational structure is appropriate to implement CPAs and to monitor relevant parameter /31/. WIF has assigned 1 field manager, 5 technical assistants and 10 field assistants for each CPAs expected /32/.</p> <p>(b) PoA-related staffs have enough knowledge about CDM rules such as local stakeholder consultation process and monitoring parameters.</p> <p>Validation team interviewed director of Forest Department, Yangoan and reviewed host party's policy related to the proposed PoA. It is been checked and confirmed that there are no laws, policies or mandatory requirements in the host country, which requires the programme entity to restore and reforest mangroves in degraded areas and land accretions. Government of Myanmar has made continuous effort to prevent degradation and reforestation of Mangroves. However, has has faced barriers such as limited budget. In this situation, WIF contacted EcoEye Co.Ltd. and had chance to raise a fund from Korean companies to initiate the mangrove planations. So, validation team concluded that proposed PoA is not mandatory and the the initiative taken by the CME is completely voluntary.</p>
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	<p>The PoA contribute towards sustainable development of host party, the same was confirmed from the LoA issued by the DNA of the host country /33/.</p> <p>The identified boundary and selected sources and gases are justified for the PoA. The PoA is limited to all region of the Republic of the Union of Myanmar. The validation of the PoA did not reveal other greenhouse gas emissions occurring within the proposed PoA boundary as a result of the implementation of the proposed PoA which are expected to contribute more than 1% of the overall expected average annual emission reduction.</p> <p>The boundary of the potential/future CPAs of the PoA has been assessed by considering information gathered from the site visit, interviews, and from description of the gas and sources involved as contained in the PoA-DD is planned to implement in all region of the Republic of the Union of Myanmar. Validation team confirms that the project boundary is based on the applied methodology AR-AM0014 (Afforestation and reforestation of degraded mangrove habitats), version 3.0, as it contains the spatial extent of the CPA including the physical and geographical site of the project activity. The sources and gases within the boundary have been considered in a clear manner. Validation team based on the above confirms that the delineated project as documented in the PoA-DD is justified for the CPAs of the PoA and is fully in line with the requirements set by the applied methodology. Validation team based on above confirms the compliance with VVS requirements.</p> <p>The PoA is the reforestation/restoration of degraded or severely degraded mangrove habitats as well as afforestation on grasslands on land accretions present within degraded mangrove habitats along the coastline of the Republic of the Union of Myanmar, resulting in increased area under mangroves. This has been checked by means of interviews and site visit observations.</p> <p>Assessment of eligibility of the land The Myanmar Government defines forests as land having growing trees with /34/:</p> <ul style="list-style-type: none"> • A minimum area of 0.1 hectares; • A minimum tree crown cover of 10%; and • A minimum height of 2 meters. <p>The PoA-DD section J.2 confirms that the land eligibility will be demonstrated in detailed with evidences at each CPA level as per the requirements of the latest version of the A/R methodological Tool Demonstration of eligibility of lands for A/R CDM project activities” /18/. Further justification is provided in section D.2.3.2</p> <p>Approaching for addressing non-permanence The issuance of ICER for the net anthropogenic GHG removals by sinks achieved by the proposed A/R CDM PoA is chosen.</p>
Findings	<p>CAR 1</p> <ol style="list-style-type: none"> 1. The proposed A/R CDM PoA plans to establish 35,000 ha of mangrove plantations on currently degraded costal/ intertidal areas in Myanmar. The CME is requested to provide evidences for the same. 2. PP is requested to provide the management framework agreement between the CME and CPA implementers to support the explanation provided under section “the framework developed for the implementation of the proposed PoA. 3. The title of the PoA-DD states Asia. However, the host party involved and the project boundary selected in the PoA-DD is for Myanmar and the CDM website for prior CDM consideration also states Bangladesh as one of the host party. PP is requested to clarify the same. 4. The PoA-DD states that the project contributes to sustainable developmental goals 1,2,3,8 ,13 ,14 and 15. However, there is no explanation on how it contributes to the above mentioned goals. Further, the PP is requested justify on how the PoA contributes to the sustainable development of host party. And also provide the LoA from the host party involved in the PoA-DD. 5. As per section A.3 of the PoA-DD ,the technology employed by the CPAs under the PoA are reforestation and restoration of degraded mangrove habitats. However,

	<p>as per the site visit observations, the project is not a reforestation and restoration activity. PP is requested to justify on how the PoA-DD meets clause 7.2 of 33(e) (f) of CDMPS for PoA.</p> <p>6. The details of the PPs provided in section A.5 of the PoA-DD is inconsistent with the Appendix-1 of the PoA-DD.</p> <p>7. The CME is requested to provide Tri party agreement between CME, CPA implementer and other PPs. Mou between Forest depart and WIF on land ownership details and land tenure rights.</p> <p>For more information on how CAR is closed, please refer to Appendix 4 of the report. CAR1 is closed.</p>
Conclusion	<p>RINA was able to verify all the documented evidence listed above during the validation process and can confirm that data and considerations are complete and accurate. Moreover RINA confirms that the description of the proposed CDM PoA, as contained in the PoA-DD sufficiently covers all relevant elements, is accurate and complete and that it provides the reader with a clear understanding of the nature of the proposed CDM PoA.</p>

D.1.3.Management system

Means of validation	<p>Validation team based on the review of PoA-DD and discussion with CME and CPA implementer during the site visit confirms that clear and transparent description of the operational and management arrangements have been established by the CME for the PoA. All the details of individual CPAs including the documents shall be controlled by CPA implementer. Furthermore the records of individual CPAs shall also be maintained by the CME. Individual CPA implementer shall sign an agreement with the CME and agrees to comply with all terms and conditions of the PoA including those related to the monitoring and data control. The same has been confirmed from the review of template agreement between the CPA implementers and the CME where the eligibility criteria for the inclusion of the CPA in PoA are mentioned /35/. Hence any CPA which would be included in the PoA shall follow the operation and management plan of the PoA as stated in the PoA-DD and signed agreement.</p> <p>The CME has a well-defined project management structure for monitoring of the CPA which can be verified from the PoA-DD.</p> <p>The monitoring plan describes the field measurement procedures, collection of data, roles and responsibilities of staff and archiving data, QA and QC procedures, data storage etc. All the monitoring data is stored / will be recorded and kept for a period of crediting period + 2 years or the last issuance of CERs + 2 years whichever occurs later by CME</p>
Findings	<p>CL 1</p> <p>1. Section B of the PoA-DD states WIF as the CPA implementer, PP is requested to clarify, if the same CPA implementer will be involved in all the CPAs getting added to the PoA-DD.</p> <p>2. Provide the Operation and Management sytructure.</p> <p>3. Provide records of arrangements for training and capacity development for personnel.</p> <p>For more information on how CL1 is closed, please refer to Appendix 4 of the report. CL1 is closed</p>
Conclusion	<p>The roles and responsibilities are clearly described in section B.5.3 of the PoA-DD. Validation team based on the review of PoA-DD and discussion with CME during the site visit confirms that clear and transparent description of the operational and management arrangements have been established by the CME for the PoA.</p>

D.1.4.Demonstration of additionality of PoA

Means of validation	<p>As per the methodology CDM AR-AM0014, the project proponent has demonstrated the additionality and baseline scenario through the application of the 'Combined tool to identify the baseline scenario and demonstrate additionality in AR CDM project activities' (version 1)/11/.</p> <p>The following steps have been followed:</p> <p>STEP 0. Preliminary screening based on the starting date of the A/R project activity</p> <p>The starting date of the A/R CDM PoA is 05/12/2018, which is as per the prior consideration form submitted to UNFCCC /36/. The same is accepted as it as per the Glossary: CDM terms, version 09.1 of 01/09/2017 /37/. It is checked that the incentives from the sale of carbon credits was seriously considered in the decision to proceed with the project activity, which was cross checked with the certified true copy of the resolution passed at the meeting of the Board of Directors of EcoEye CO LTD, held at 05/11/2018 /38/. Hence the validation team concludes that the project participant was aware of CDM much before the start of the project activity and CDM credits were seriously considered in the decision to implement the project activity. It is also confirmed that the PPs have taken continuous and real actions to secure CDM status for the project in parallel with its implementation, which was checked from the chronology of events discussed in section C of the CDM PoA-DD /01/.</p> <p>STEP 1: Identification of alternative land use scenarios to the proposed A/R CDM project activity.</p> <p>Sub-step 1a: Identify credible alternative land use scenarios to the proposed CDM PoA.</p> <p>The following alternative land use scenarios have been identified as the plausible land use scenarios for the proposed A/R CDM programme activity;</p> <ol style="list-style-type: none"> 1. Continuation of the pre-project land use which is the degraded and severely degraded lands or land accretions within degraded mangrove habitats which have grasses and dispersed mangroves. 2. Mangrove reforestation/restoration/afforestation of the land within the project boundary performed without being registered as a CDM PoA. 3. Conversion of project lands for agricultural activities, including cultivation of rice paddies. <p>The above mentioned alternatives were checked during the site visit and also confirmed by interviewing stakeholders. The above listed alternatives are in compliance with local laws, which do not require the restoration of degraded lands and does not prohibit or require that degraded mangrove areas be left to regenerate naturally, confirmed by interviewing Director of Forest Department, Yangoan /39/, constitution of the protected public forest , notification no 551/2015 /03/, notification no. 59/2019 /04/. The letter from the Ministry of Environmental Conservation and Forestry also have confirmed that these lands did not have any forests and are degraded /03/ /04/. Thus, the option of natural mangrove regeneration has not been considered as one of the alternative, which is accepted by RINA team. It is further noted that the Government policies in place have supported self-sufficiency in food production, which saw conversion of mangroves to rice paddies. However, the same is not applicable to the proposed project lands. Since the lands selected for the proposed PoA are classified as Protected Public Forest (PPF) lands and as per the forest law , dated 20/09/2018 /73/ PPF lands are demarcated for the purposes of protection of water and soil, conservation of dry forests, conservation of mangrove forests, conservation of environment and</p>
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biodiversity and conservation of forests for sustainable production of forest products. Thus, the proposed land will never be converted to agricultural lands and there is no impact on socio – economic aspects. It is further confirmed that the proposed lands were PPF by checking “The Government of the Republic of the Union of Myanmar, Ministry of Environmental Conservation and Forestry , Office of the Union Minister Notification Number (551/2015) dated 3/07/2015 and notification number (59/2019) dated 08/05/2019 /03/ /04/. Location map of Kanlyashe Protected Public Mangrove Forest (MAP No. 94 D/4) /74/. Authorization letter from the Ministry of Natural Resources and Environmental conservation. Forest Department – authorizing WIF to undertake the mangrove plantation activities in Kanlyashe PPF /05/. The validation team also checked the land use land cover classes of yanhon region for the proposed PoA as per FRA 2015 /76/ and the area has been classified under RF, PPF and proposed PPF /75/. The validation team also checked NDVI classified images for the year 2016 and 2019 /77/ and confirms that there is no existence of agricultural lands in the proposed areas.

Sub-step 1b. Consistency of credible alternative land use scenarios with enforced mandatory applicable laws and regulations

The project is in compliance with the following laws and regulations of the country

National Land Use Policy (2006) /6/

National Biodiversity Strategy and Action Plan 2015-2020 (2015) /7/

National Adaptation Programme of Action to Climate Change (2012) /8/

Myanmar Action Plan on Disaster Reduction 2012 /9/

National Sustainable Development Strategy (2009) /10/

National Environmental Policy (1994) /11/

Forest Policy (1995) Myanmar also submitted its new Climate Action Plan to the UN Framework Convention on Climate Change (UNFCCC) on September 2015. (Intended Nationally Determined Contribution-INDC)

The detailed Myanmar Laws and regulations to support the project activities are as follows /11/:

Forest Law (1992) /12/

Protection Of Wildlife And Conservation Of Natural Areas Law (1994) /13/

Myanmar Agenda 21/16/

Forestry Master Plan (2001-2030) /14/

Environmental conservation law (2012) /15/

Apart from the above RINA team also checked with the officers of forest depart on the laws and policies applicable to the project activity. This was further confirmed by chairman and village leaders of the respective village tract where the first CPA is going to be implemented /36/. Noted that the alternatives mentioned above are in compliance with the legal and regulatory requirements.

Outcome of Sub-step 1b: The following are the most plausible and credible alternative land uses to the CDM A/R project activity which are in compliance with all applicable legal and regulatory requirements of Myanmar.

Alternative 1: Continuation of the pre-project land use which is the degraded, severely degraded and land accretions within degraded mangrove habitats.

Alternative 2: Mangrove reforestation/ restoration and afforestation of the land within the project boundary performed without being registered as a CDM A/R project.

STEP 2. Barrier analysis

Sub-step 2a. Identification of barriers that would prevent the implementation of at least one alternative land use scenarios.

The barriers considered are:

- Investment Barrier, other than insufficient financial returns

Investment Barrier, other than insufficient financial returns

As discussed in the PoA-DD, the main objective of the project is to establish and maintain a sustainably managed mangrove ecosystem for carbon sequestration, natural disaster risk reduction, poverty reduction with sustainable livelihoods in the coastal communities. It is to be also noted that the project does not generate any kind of revenue in terms of timber production or wood harvesting. The project is completely a non-profitable activity, with the intention to support the livelihoods of local community, by means carbon revenue generated from the proposed project.

Looking at the past history of similar mangrove reforestation projects in Myanmar, it is noted that the projects have only been implemented with grants or other non-commercial finance terms (Government funds). Myanmar Government (Forest Department) has reforested mangroves mainly in Bogalay, Laputta and Pyarpon townships between the period of 2008-2016 on an area of 1,943 ha have been planted in Bogalay (242 ha/year) while an area of 1,781 ha have been planted in Laputta (222 ha/year). An area of 951 ha have been planted in Pyarpon between the period 2009-2016 (136 ha/year) /40/. The local NGO, Mangrove Service Network (MSN) has established around 575 ha of mangroves over the period of 2013-2017 with the funding from POSCO DAEWOO in Rakhine State (115 ha planting per year) /41/. Another local NGO, Forest Resource Environment Development and Conservation Association (FREDA) has planted 2,940 ha of mangroves in Pyarpon Township (Ayeyarwaddy Region) over a period of 20 years (147 ha planting per year) funded by different agencies /42/. In the past the planting of mangroves have been less than 150 ha per year by any NGO due to different constraints. Being a least developed country, the actual status or the data for the above referred plantation activities is not clear. The extent to which the mangrove plantation activity has already diffused in the geographical area of the proposed A/R PoA is further explained in “common practice analysis”.

The PD demonstrates lack of access to capital by means of “Guidelines for objective demonstration and assessment of barriers”, version 01 of 16/10/2009 /25/. During the site visit, it was found that the project is implemented by WIF, with the support from ECO Eye Co Ltd /38/. WIF (Worldview International Foundation) is an international non-government organization (non-profit) /43/ and as discussed in above section, the other partners involved are the forest department and local communities. WIF was established in 1979 /43/ and have been involved in projects in various issues: communication, health, agriculture and food security, environment, education, democracy and human rights. Worldview has worked in close cooperation with UN Agencies and other international and national partners. Checked that mangrove planation is 2nd project for WIF, after successful implementation of 1 VCS project. During the audit, RINA checked the audited reports of WIF for the year 18-19 by Maung Maung Hteik and Associates, certified public accountants /44/. From the “statement of financial position of WIF” it is clear that the WIF lacks the capital to implement the proposed project activity. However, the project started with the financial support from Eco Eye Co Ltd, who is the CME for the proposed PoA. RINA checked the Budget proposed for mangrove plantation /45/, it is understood that though the project can be implemented with the available funds, however, to sustain throughout the crediting period, carbon credits are required. Moreover, the funds were assured only on the basis of CER credits /38/. It is also checked that no private capital is available from domestic or international capital markets due to real or perceived risks associated with investments in the country where the A/R project activity is to be implemented, as demonstrated by

the credit rating of the country. RINA team checked the credit rating of Myanmar which categorizes Myanmar a country considered as Extremely speculative /17/. As per the interactions with the representatives of WIF /39/ and the contract between WIF and Eco Eye Co Ltd /35/, the entities involved in the financing is only Eco Eye Co Ltd and the only revenue from the project is the credits generated from the proposed project activity, which clearly demonstrates that revenues from the CDM project, alleviates the barrier.

Outcome of Step 2a: Thus, based on the above mentioned documents, it is demonstrated that the investment barrier is credible and realistic barriers that prevents the implementation of alternative 2 (Mangrove reforestation / restoration and afforestation of the land within the project boundary performed without being registered as a CDM A/R project).

Sub-step 2b. Elimination of land use scenarios that are prevented by the identified barriers

As discussed in sub step-2a, alternative 2 (Mangrove reforestation/restoration /afforestation of the land within the project boundary performed without being registered as a CDM ARR project) has been eliminated due to investment barrier.

Outcome of Sub-step 2b: The land use types that are not prevented by any barriers are as follows.

Alternative 1: Continuation of the pre-project land use which is the degraded and abandoned lands

Sub-step 2c. Determination of baseline scenario (if allowed by the barrier analysis)

The steps involved in the decision tree has been followed in the PoA-DD which results to baseline scenario : Continuation of the pre-project land use which is the degraded and abandoned lands.

The Decision Tree allows continuing with Step 4: Common practice analysis.

Step 4 : Common Practice Analysis

The project is proposed to be implemented in Northern part of Ayeyarwady Division of Myanmar. However, the data on the forestry activities with similar scale in this region is not available and thus the host country, Myanmar is considered as the applicable geographical area for comparison with similar forestation activities.

It is checked that the out of the total forest areas, only 4% belongs to mangrove forests in Myanmar /46/. As discussed above in the barrier analysis, the following are the data available on the mangrove plantation activities:

Details of the Mangrove Plantation activities in Myanmar

Period	Implemented by	Area in ha	Ha/year	Funded by
2008-2016	Forest Dept.	1,943 in Bogalay	242	Government of Myanmar /40/
		1,781 in Laputta	222	
		951 in Pyarpon	136	
2013-2017	Mangrove Service Network (MSN)	575 in Rakhine state	115	POSCO, DAEWOO /41/
1999-2018	Forest Resource	2940 in Pyarpon	147	ACTMANG, EED, Lion

	<table border="1"> <tr> <td data-bbox="552 150 719 367"></td> <td data-bbox="719 150 911 367">Environment Development and Conservation Association (FREDA)</td> <td data-bbox="911 150 1115 367">Township (Ayeyarwaddy Region)</td> <td data-bbox="1115 150 1262 367"></td> <td data-bbox="1262 150 1441 367">Club, MERN, DKH, Postal /47/</td> </tr> </table>		Environment Development and Conservation Association (FREDA)	Township (Ayeyarwaddy Region)		Club, MERN, DKH, Postal /47/
	Environment Development and Conservation Association (FREDA)	Township (Ayeyarwaddy Region)		Club, MERN, DKH, Postal /47/		
Findings	<p>However the percentage of survival data for the above mentioned plantation activities are not available. RINA further crosschecked the successful ratio of these projects with officials from forest department and local stakeholders and it is understood that there has not been any systematic reforestation/or restoration efforts carried out that will generate forests on a large scale in the region. This was further confirmed by means of NASA studies /28/. The National Biodiversity Strategy and Action Plan, 2011 /7/ states that more than 100,000 ha has been cultivated by the Government. However, NASA studies confirm that only 46,200 ha of mangroves were left in 2013 /28/. It is therefore evident that these cultivation efforts have not been successful in increasing the mangrove forest cover in the area. The majority of attempts simply involved planting but there have been practical difficulties in maintaining in the long run and protect the mangroves from external threats due to lack of effective management practices. Thus, RINA is of the opinion that the proposed project is different in nature from the rest of the other project discussed above. During the site visit and also during the course of validation, it was found that being a least developed country no much data is available on the similar activities. Moreover, as per the "Guidelines for objective demonstration and assessment of Barriers", version 01 /25/ "For projects in Least Developed Countries, it is sufficient to transparently describe the relevant barriers, as less stringency is needed with regards to data availability in the actual demonstration of barrier, as compared to the projects in other countries. Projects in Least Developed Countries are not bound by the provisions in this guideline and may use other approaches that are more adapted to the local circumstances. Thus, projects in Least Developed Countries can be assumed in general to face significant barriers to their implementation. At the same time, data availability in these countries is considerably limited which complicates the demonstration of additionality and therefore further increases transaction costs.</p> <p>In view of the above, the project activity would not be a common practice in the geographical region of analysis and it would, therefore, be additional and the proposed project activity is not the baseline scenario. RINA confirms that all data, rationales, assumptions, justifications, and documentation provided by the project participants to support demonstration of additionality are credible and reliable, which was checked and verified at the time of validation. RINA considers the reasoning for the proposed project additionality demonstration is credible and reasonable i.e. the proposed project has the ability to reduce anthropogenic emissions of greenhouse gases by sources below those that would have occurred in the absence of the registered CDM A/R project activity.</p> <p>CL 2</p> <p>1. Provide evidence that the incentive from the planned sale of CERs was seriously considered in the decision to proceed with the project activity.</p> <p>2. Provide the letter of authorization obtained from the host country in order to proceed with the requirements of registering the programme under a carbon mechanism</p> <p>STEP 1. Identification of alternative land use scenarios to the proposed A/R CDM project activity</p> <p>Sub-step 1a. Identify credible alternative land use scenarios to the proposed CDM project activity. Following are the two alternatives identified:</p> <p>1. Continuation of pre-programme land use i.e. degraded or severely degraded mangrove habitats.</p>					

	<p>2. Restoration and reforestation of mangroves on the lands within the project boundary without being registered as a CDM project activity. As per the site visit observations, it is understood that the land where the project is proposed to be implemented is not a degraded mangrove habitat and thus the alternatives proposed by the client is not plausible and credible alternatives.</p> <p>STEP 2. Barrier analysis</p> <p>Investment barriers, other than insufficient financial returns as depicted in Step 3, inter alia:</p> <ol style="list-style-type: none"> 1. PP is requested to provide evidences to justify that similar plantation activities have been carried out only with grants or non-commercial financial terms, such as govt. funds. 2. RINA team could not cross check the statement "Govt. of Myanmar has initiated participatory policies such as community forestry (1995) and private planting in 2006, only a small area has been planted. As of 2017, 3551 ha has been planted under community forestry and 1037 ha under private plantations have been established" under footnote 22. 3. Note that footnote no 24 and 27 does not work. 4. Could not cross check the statement " 58000 ha have been planted through JICA from 1980 to 2016" from footnote 26. <p>Technological Barrier:</p> <ol style="list-style-type: none"> 6. PP is requested to provide evidence to justify "Lack of access to necessary materials, for example planting materials; - Lack of infrastructure for implementation of the technology. <p>STEP 3. Investment analysis</p> <ol style="list-style-type: none"> 1. PP is requested to provide the simple cost analysis spread sheet and the supporting evidences for the input values considered in the cost analysis sheet. <p>STEP 4. Common practice analysis:</p> <p>The table provided under common practice analysis, doesn't provide the entire list of plantation activities. It is seen that there are also other plantation activities funded by other organizations as shown in the reference doc https://www.gwp.org/globalassets/global/gwp-sas_images/gwp-sas-in-action/ldai/ldai_fd.pdf. Further PP to clarify, what are the essential distinctions between the proposed project and the other similar activities identified. Also, clarify why the similar forestation activities did not face barriers to which the proposed A/R CDM project activity is subject</p> <p>For more information on how CL is closed, please refer to Appendix 4 of the report. CL 2 is closed</p>
Conclusion	<p>RINA was able to verify all the documented evidence listed above during the validation process and can confirm that:</p> <ul style="list-style-type: none"> • All the assumptions and data used by the project participants are listed in the PoA-DD, including their references and sources; • All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PoA-DD; • Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable; • Relevant national and/or sectoral policies and circumstances are considered and listed in the PoA-DD; • The approved baseline methodologies AR-AM0014 (Afforestation and reforestation of degraded mangrove habitats), version 3.0 /23/ has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM project activity. <p>The audit team confirms that the assumptions made in the demonstration of additionality are reasonable and that the project's additionality is well fundamented.</p>

D.1.5.Start date and duration of PoA

Means of validation	The start date of the PoA-DD is 05/12/2018, which is as per the prior consideration
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	<p>form submitted to UNFCCC. The same is accepted as it as per the Glossary: CDM terms, version 09.1 of 01/09/2017. The duration of the A/R PoA is 60 years, which is acceptable as per para 43 of PS for PoA.</p> <p>The eligibility criteria of the start date of CPA have been defined as per the EB guidelines through glossary of CDM terms towards the start date of the CPA. The starting date of the CPA is defined as 'the date on which the site preparation begins, and it cannot be prior to the commencement of validation of the PoA (date on which prior consideration form submitted to UNFCCC /36/).</p>
Findings	<p>CL 3</p> <p>The start date of the PoA-DD is 05/12/2018, which is as per the prior consideration form submitted to UNFCCC. The same was also checked from the UNFCCC site and accepted. However, as per the PCP for PoA , para 4 of clause 4.1 , the CME may also notify the DNA of the host country in writing to seek the CDM status. PP is requested to provide copy of the same. Further , PP is requested to correct the start date format in dd/mm/yyyy.</p> <p>For more information on how the CL is closed, please refer to Appendix-4 of the report. CL3 is closed.</p>
Conclusion	<p>RINA confirms that the defined start date is in accordance with the latest CDM glossary version 09.1 RINA confirms that the start date of any CPA is not prior to the commencement of the validation of the PoA, which is the date of the prior CDM consideration form submitted to UNFCCC.</p>

D.1.6.Environmental impacts

Means of validation	<p>As per the host country requirements EIA is not required for restoration and plantation of mangrove projects. This was confirmed with the interviews held with personnel from forest department and also by means of "Environmental Impact Assessment procedure", published by the Ministry of Environmental Conservation and Forestry, The Government of the Republic of the Union of Myanmar, dated 29/12/2015 /27/</p>
Findings	<p>CAR2</p> <p>1. The analysis of environmental impacts are considered at the PoA level. However, RINA team is of the opinion that the proposed CPA's are spread across Myanmar and there would be lot of difference in topography, biodiversity and ecosystem. CME is requested to justify on how the assessment of environmental impacts at PoA level is justifiable. Further as per clause 7.6 of PS -PoA, for A/R CDM PoA, the CME shall carry out the analysis, including transboundary impacts (impacts on biodiversity and natural ecosystems and impacts outside the programme boundary), and provide a summary of the analysis and references to all related documentation.</p> <p>2. PP is requested to provide EIA rules , which states under which condition the project requires EIA assessment. Also, provide copy of the Republic of the Union of Myanmar regulations, which states that an environmental impact assessment (EIA) is not required for restoration of mangrove habitats and planting of mangroves</p> <p>For more information on how the CAR is closed, please refer to Appendix-4 of the report. CAR 2 is closed.</p>
Conclusion	<p>The Host Country approval does not have any criteria for the PoA and confirms the project to benefit the environment. No legal requirements by the governing local country calls for EIA. The DOE confirms the same through approved LOA, site visit and Environment Impact Analysis assessment at PoA level</p>

D.1.7.Socio-economic impacts

Means of validation	<p>The proposed project is reforestation and restoration project and there are no negative socio-economic impacts due to the project activity. This was confirmed by interviewing the local stakeholders, the chairman and the village leaders of the respective village tracts, where the project is proposed to be implemented /36/. In fact, the project will lead to positive impacts like low income families in the area will get more opportunities to increase their income, new employment opportunities,</p>
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	knowledge in silviculture, infrastructure development and change in life style of local villagers
Findings	<p>CAR3</p> <p>As discussed above, the CPAs are spread across Myanmar and the stakeholders involved in each CPA is different from others. PP is requested to justify on how the socio economic impact assessment at PoA level is justifiable. As per para 48 of PS-POA, for a proposed A/R CDM PoA, the coordinating/managing entity shall carry out an analysis of its major socio-economic impacts, including impacts outside the programme or project boundary. The CME is requested to carry out the analysis and provide a summary of the analysis and references to all related documentation</p>
Conclusion	The Host Country approval does not have any criteria for the PoA and confirms the no negative socio economic impacts . No legal requirements by the governing local country calls for Socio Economic Assessment. The DOE confirms the same through approved LOA, site visit and socioeconomic Impact assessment at PoA level.

D.1.8.Local stakeholder consultation

Means of validation	<p>It is checked that there are no host party requirements/rules applicable on local stakeholder consultation. The same was confirmed by interviewing the local stakeholders /39/.</p> <p>The local stakeholder consultation (LSC) process was undertaken at the PoA level to ensure comments / concerns of the local stakeholders on the reforestation/restoration of degraded mangroves as a climate change mitigation and adaptation strategy along the coastline of the Republic of the Union of Myanmar. The local stakeholder consultation meeting for PoA was held at at the Buddhist Monastery hall, Letkhokekone Village, Yangoan, the Republic of Myanmar on 11/02/2019. The groups of the stakeholders identified are members of community forest, administrators and leaders from Letkhokekone village, Sae Eain Tan village, Kan Halyar Shae village, A lae ywar village, Ka Nyin Pin village, In Hin Kaung village, Ywar Thit Kone village, Ka Yin Chaung village, officials from forest department and representatives from WIF. The same was confirmed from the list of participants who attended the consultation /69/.</p> <p>This LSC , dated 11/02/2019 was conducted before the start date of the 1st CPA-DD , dated 13/02/2019. The same is as per paragraph 64 of the CDM PS for PoA /78/. The start date of the 1st CPA is the date of land preparation. Which is appropriate as per the definition of Glossary:CDM terms version 10.0 /37/. The land preparation dates was cross checked with the payment vochoure receipt /81/ and further cross checked with project schedule discussed in appendix of the joint agreement between Ecoeye and WIF /35/ and confirmation from the financial auditing firm (Maung Maung Hteik & Associates), dated 29/05/2020 /82/. The validation team noted that all the relevant stakeholders identified are in line with the definition of stakeholders as per latest version of CDM Glossary of terms. The CME has utilized appropriate media to invite these stakeholders; public invitation, public notices, emails & personal invitation /70/. Stakeholders were directly asked to comment on the project through an open meeting conducted on 11/02/2019 among local stakeholders. A summary of the comments received and a note on how due account was taken of the concerns raised in the above public consultation are included in section G of the PoA DD. From the minutes of the meeting /71/ and interaction with the stakeholders during the site visit , RINA is of the opinion that the stakeholders are positive towards the project and they do not have negative comments. Validation team reviewed all relevant information of local stakeholder consultation meeting and confirms that the LSC meeting meets to the requirement of paragraph 61 of CDM VVS for PoA /79/. The validation team confirms that the process for conducting the local stakeholders meeting is adequate and credible. During the on site visit, representatives from the local community were interviewed. In general, the interviewees showed adequate understanding of the nature of the project and felt that there would be no adverse impacts on the environment arising from the project activity. The interviewees also considered that the local communities would be benefitted from the project activity.</p>
Findings	<p>CL4</p> <p>As discussed above , the CPAs of the PoA will be spread across Myanmar and there by the stakeholders, villagers, communities , municipality would be different</p>

	<p>for each CPA. Thus , the CME is requested to justify on the stakeholder consultation at PoA level..</p> <p>CME is requested to provide the translation of newspaper notice. Apart from the newspaper notice, what were the other modes of invitation. Also provide copy of the same.</p> <p>PP is requested to clarify if there are applicable host Party rules on local stakeholder consultation. The same is also not transparent in the PoA-DD.</p> <p>For more information on how the CL is closed, please refer to Appendix-4. CL4 is closed.</p>
Conclusion	RINA considers the local stakeholder consultation carried out adequately and can confirm that the process is credible.

D.1.9.Sustainable development co-benefits

Means of validation	Though the project contributes to multiple sustainable developmental co-benefits like employment generation, skill enhancement by trainings, income generation by sustainable crabbing shrimp farms, natural dye production, protecting the coastline from natural disasters and many more positive environmental benefits. However, the same is not monitored separately, though this was checked during the site visit by interviewing the stakeholders.
Findings	<p>CL5</p> <p>It is not clear if the CME has developed a document describing how it intends to monitor sustainable development co-benefits of the proposed CDM PoA, including the frequency of reporting of monitoring results and whether they intend to have monitoring results independently verified.</p> <p>For more information on how the CL is closed, please refer to Appendix-4 of the report.</p> <p>CL5 is closed.</p>
Conclusion	The PP doesn't intent to monitor the sustainable development co-benefits. Thus, a document describing how the coordinating/managing entity intends to monitor the sustainable development co-benefits of the proposed CDM PoA was not developed by the coordinating/managing entity. Since the same is not mandatory, RINA accepted the justification provided by PP.

D.1.10.Approval

Means of validation	<p>The current CDM PoA has received letter of approval reference (No-CC/2 (Eco EYE)/(343/2019) dated 24/05/2019 and addendum for existing LoA (No-CC/2(Eco EYE)/(812/2019), dated 31/10/2019 has been received from the CME is verified /33/. The name of the CME and the specific CPA Implementer is consistent throughout the PoA-DD.</p> <p>The LoA issued by the DNA of The Republic of the Union of Myanmar, Ministry of Environmental Conservation and Forestry mentions the same name as the CME, specific CPA implementer and the project title. The title of the project presented to host country DNA (India) is same as the title provided in the webhosted and the current final version of PoA-DD. The project plans to restore/reforest/afforest degraded and grassy land accretions of degraded mangrove habitat respectively along the coastal /intertidal mangrove habitats in Myanmar.</p> <p>For the host country, the LOA defines the approval and authorization for the project activity. The validation team confirms that the regional and national framework does not call for additional clearance for this project activity. The below table summarizes the project participants and parties involved.</p> <table border="1" data-bbox="459 750 1441 1753"> <tr> <td>Project Participants</td><td>EcoEye CO. LTD (CME) Worldview International Foundation (WIF)</td></tr> <tr> <td>Parties Involved</td><td>The Republic of the Union of Myanmar</td></tr> <tr> <td colspan="2">Approval</td></tr> <tr> <td>LoA Received</td><td>Yes</td></tr> <tr> <td>Date of LoA</td><td>24/05/2019 and amended LoA, dated 31/10/2019</td></tr> <tr> <td>Reference to Document</td><td>No-CC/2 (Eco EYE)/(343/2019), No-CC/2(Eco EYE)/(812/2019) /33/</td></tr> <tr> <td>LoA Received from</td><td>Ministry of Environmental Conservation and Forestry</td></tr> <tr> <td>Validation of authenticity</td><td>The LoA submitted as a soft copy through e-mail has been cross verified with the original copy. Thus the LoA submitted is authentic.</td></tr> <tr> <td>Validity of LoA</td><td>Valid</td></tr> <tr> <td colspan="2">Participation</td></tr> <tr> <td>Party is Party to Kyoto Protocol</td><td>Myanmar ratified Kyoto protocol in 13 August 2013</td></tr> <tr> <td>Voluntary participation</td><td>Yes</td></tr> <tr> <td>Diversion of official development aid towards host country</td><td>There is no official development and public funding from annex 1 countries was involved in developing and implementing the proposed CPAs and included as one of the selection criteria for the inclusion of CPA in the PoA /1/.</td></tr> <tr> <td>Projects contribution to SD</td><td>The LoA mentions tha the proposed PoA , i.e. afforestation/restration anf reforestation of degraded mangrove habitats contributes to sustainable development of host country.</td></tr> </table>	Project Participants	EcoEye CO. LTD (CME) Worldview International Foundation (WIF)	Parties Involved	The Republic of the Union of Myanmar	Approval		LoA Received	Yes	Date of LoA	24/05/2019 and amended LoA, dated 31/10/2019	Reference to Document	No-CC/2 (Eco EYE)/(343/2019), No-CC/2(Eco EYE)/(812/2019) /33/	LoA Received from	Ministry of Environmental Conservation and Forestry	Validation of authenticity	The LoA submitted as a soft copy through e-mail has been cross verified with the original copy. Thus the LoA submitted is authentic.	Validity of LoA	Valid	Participation		Party is Party to Kyoto Protocol	Myanmar ratified Kyoto protocol in 13 August 2013	Voluntary participation	Yes	Diversion of official development aid towards host country	There is no official development and public funding from annex 1 countries was involved in developing and implementing the proposed CPAs and included as one of the selection criteria for the inclusion of CPA in the PoA /1/.	Projects contribution to SD	The LoA mentions tha the proposed PoA , i.e. afforestation/restration anf reforestation of degraded mangrove habitats contributes to sustainable development of host country.
Project Participants	EcoEye CO. LTD (CME) Worldview International Foundation (WIF)																												
Parties Involved	The Republic of the Union of Myanmar																												
Approval																													
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Projects contribution to SD	The LoA mentions tha the proposed PoA , i.e. afforestation/restration anf reforestation of degraded mangrove habitats contributes to sustainable development of host country.																												
Findings	<p>CAR4</p> <p>The coordinating/managing entity is requested to provide a letter of approval from the DNA of each Party involved in the proposed CDM PoA that:</p> <p>(a) Confirms that the Party is a Party to the Kyoto Protocol;</p> <p>(b) Confirms that the participation in the proposed CDM PoA is voluntary;</p> <p>I Refers to the precise title of the proposed CDM PoA.</p> <p>For more information on how the CAR is closed, please refer to Appendix-4 of the report.</p> <p>CAR 4 is closed.</p>																												

Conclusion	The authenticity of the letters of approval has been validated by the RINA validation team. These LoA are therefore regarded as valid and meeting the requirements. The validation team confirms that the information related to the letter of approval as mentioned in the above table is authentic. The entire project participants listed in the tabular form of the PoA-DD have obtained the letter of approval from the respective DNA.
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D.1.11.Authorization

Means of validation	EcoEye CO. LTD (CME and PP) and Worldview International Foundation (WIF) (PP) will communicate with the Board. The host Party (Myanmar) meets all relevant participation requirements. A Letter of Approval (LoA) /33/ is issued by the DNA of Myanmar 24/05/2019, authorizing EcoEye Co Ltd and Worldview International Foundation (WIF) as project participant and confirming that the PoA contributes to sustainable development.
Findings	CAR5 1.The CME is requested to provide authorization letter or approval letter authorizing each project participant by at least one Party involved in the proposed CDM PoA to participate in the PoA. 2. The CME is requested to provide authorization letter or approval letter authorizing CME by each host Party of the proposed CDM PoA to coordinate the PoA. For more information on how the CAR is closed, please refer to Appendix-4 of the report. CAR 5 is closed.
Conclusion	The validation team has no reason to doubt the authenticity of the LoA from Myanmar and considers the LoA are in accordance with paragraphs 39-42 of the VVS.

D.1.12.Modalities of communication

Means of validation	<p>The MoC is signed on 17/07/2019 and 08/08/2019 /55/ was provided by EcoEye CO LTD with whom RINA has a contractual relationship confirmed by the request of services signed on 28/03/2019 /56/. Section 2 of the MOC identifies joint focal point i.e. Korea Electric Power Corporation and Ecoeye Co Ltd. The corporate identity of all the focal points (joint) and the PP(s) included in the MoC statement, as well the personal identities, the signatures and the related authorized signatures, and the employment status have been cross-checked through written confirmation from the project participant that submits the MoC statement that all corporate and personal details, including specimen signatures, are valid and accurate /58/ /59/ /60/ copy of the passports /61/ and interviews with the PP confirmed the same.</p> <p>RINA confirms that the MoC statement provided by the CME /55/ is based on the currently valid form "Modalities of Communication Statement" (F-CDM-MOC) /62/, the information required by the form including its Annex 1 is correctly completed, and the PP(s) authorized signatories signing the MoC correspond to the PP(s) authorized signatories included in CDM-MOC-FORM, Annex 1.</p>
Findings	CAR6 CME is requested to provide the MoC statement. Further, CME is requested to provide evidences to validate the corporate identity of all project participants, the coordinating/managing entity and focal points included in the Modalities of Communication (MoC) statement, as well as the personal identities. For more information on how the CAR is closed, please refer to Appendix-4 of the report. CAR 6 is closed.
Conclusion	RINA team was able to confirm the information contained in the MoC and that the MoC complies with all relevant forms and requirements.

D.1.13.Global stakeholder consultation

Means of validation	The PoA-DD, version 01 dated 23/03/2019 has been web hosted from 29/03/2019 – 13/05/2019. No comments were received during the global stakeholder consultation.
Findings	N/A
Conclusion	N/A

D.2.Generic component project activities**D.2.1.General description of generic CPA**

Means of validation	<p>The CPAs included in this PoA involves large scale afforestation and reforestation of degraded mangrove habitats , which will be along the coastline of the Republic of the Union of Myanmar, resulting in increased area under mangroves. All CPAs included in this PoA will be implemented in the territorial boundary of host country i.e., Myanmar and the boundary of each CPA will be demarcated using geo-coordinates to ensure there is no overlap and records for the same will be maintained by the CME.</p> <p>WIF also a project participant is responsible for demarcating the lands on which the project activities will be implemented. The CME/PP will ensure that any CPAs under the PoA are neither registered as an individual CDM project activity nor included in another registered PoA and also to make sure that same approved baseline and monitoring methodology is applied to all the CPAs.</p> <p>The key drivers for the degradation and deforestation of mangroves were due to agricultural expansion, charcoal production, mangrove clearing for aquaculture, increased population /63/ /64/ /65/. Apart from the restoration activities of mangroves, the other important objective of the project is poverty reduction with sustainable livelihoods in the coastal communities. Also, emphasising on conservation of bio-diversity.</p> <p>The species considered for the reforestation activity are <i>Avicennia officinalis</i> , <i>Rhizophora apiculate</i> , <i>Bruguiera gymnorhiza</i> (L.) Lam., <i>Sonneratia apetala</i> , which are salt tolerant and are classified as mangrove species /66/. It is also confirmed that the no. species might increase depending on the regions selected in the CPA. None of the species belong to invasive species list. Site observation by RINA team reveals that the selected species thrive well within the project area and the propagules can be easily raised in the nursery for plantation purpose.</p> <p>The CPAs under this PoA will be implemented using the approved methodology AR-AM0014, Version 03 – “Afforestation and reforestation of degraded mangrove habitats”.The project belongs to sectoral scope 14 of type: Afforestation /Reforestation Thus, the project is eligible and is classified in accordance with the CDM A/R requirements. Detailed assessment on the compliance of the project with the requirements of land eligibility and A/R requirements are further explained in the below sections of the report.</p> <p>RINA was able to verify all the documented evidence listed above during the validation process and can confirm that data and considerations are complete and accurate. Hence, RINA confirms that the description of the proposed project activity, as contained in the CDM PoA-DD sufficiently covers all relevant elements, is accurate and complete and that it provides the reader with a clear understanding of the nature of the proposed CDM programme activity.</p>
Findings	<p>CL6</p> <p>1. The title of the generic CPA-DD is given as “Restoration of degraded mangroves as a climate change mitigation and adaptation strategy in Asia CPA –XX”. However, from the discussions and interviews during the site visit, it was confirmed that the PoA involves only one host party and the CPAs will be</p>

	<p>implemented only in one country i.e. Myanmar. The same is not consistent with the title provided.</p> <p>2. The purpose of the CPA is to reforest and restore degraded or severely degraded mangrove habitats. However, as per the site visit observations the proposed area of land where the CPAs are planned to implemented are not degraded mangrove habitats. PP is requested to clarify the same with supporting evidences.</p> <p>3. The species selected for planting is not transparent in section I.3.</p> <p>For more information on how the CL is closed, please refer to Appendix-4 of the report.</p> <p>CL6 is closed.</p>
Conclusion	The validation team confirms that the description of the generic CPAs in PoA-DD is accurate, complete and provides an understanding of generic CPAs and is found to be in line with the para 90-91 of CDM VVS of PoA, version 02.

D.2.2. Selection of methodologies and standardized baselines

D.2.2.1. Deviation from methodologies and/or methodological tools

Means of validation	N/A
Findings	N/A
Conclusion	N/A

D.2.2.2. Clarification on applicability of methodology, tool and/or standardized baseline

Means of validation	N/A
Findings	N/A
Conclusion	N/A

D.2.3. Application of methodologies and standardized baselines

D.2.3.1. General

Means of validation	The CPA applies AR-AM0014 Version 03.0, Afforestation and reforestation of degraded mangrove habitats”, where project involves reforestation/restoration of degraded or severely degraded mangrove habitats or afforestation on land accretions in degraded mangrove habitats along the coastline of the Republic of the Union of Myanmar. The applicability of the methodology AR-AM0014 Version 03.0 has been assessed as described below:	
	The proposed CPA applies the methodology AR-AM0014 Version 03.0, Afforestation and reforestation of degraded mangrove habitats.	
	Applicability condition	DoE Assessment
	The land subject to the project activity is degraded mangrove habitat;	<p>The lands belonging to the project that is proposed to be planted with mangroves get inundated during high tide and are all influenced by ambient salinity; therefore all areas fall under the wetland category. PP has used satellite imagery interpretation to prove that the land subjected to the project activity is degraded mangrove habitat.</p> <p>During the site visit and interviews with the village committee leaders, forest department officials /39/. it was</p>

		<p>confirmed that the land subjected to the project activity was degraded mangrove habitat and land accretions formed as a result of excessive siltation at river mouths which occur as a result of excessive soil erosion upstream in the river or due to post tsunami/cyclone landscape changes, or a combination of both. The eligibility of the land is checked against the satellite images, project boundary shape file, kml files and land use images /49/ /50/ /51/, which confirms that the land allocated for the proposed project is well the forest threshold /34/ or and afforestation of land that has not been forested for a period of at least 50 years as per the definition of glossary of CDM terms , version 09.1 of 01/09/2017 /37/</p>
	<p>More than 90 per cent of the project area is planted with mangrove species. If more than 10 per cent of the project area is planted with non-mangrove species then the project activity does not lead to alteration of hydrology of the project area and hydrology of connected up-gradient and down-gradient wetland area;</p>	<p>100% of the project area is proposed to be planted with mangrove species. The mangrove species selected are <i>Avicennia officinalis</i> , <i>Rhizophora Apiculate</i> , <i>Bruguiera gymnorhiza</i> (L.) Lam, <i>Avicennia officinalis</i> and <i>Sonneratia apetala</i> . This was further confirmed by physical verification at the planting site and also at the nurseries. There are no non-mangrove species selected for plantation, also checked during the visit to the nurseries. The same has been confirmed the document "Mangrove nursery and planting techniques for some important mangrove species, dated January 2012 /67/.</p>
	<p>Soil disturbance attributable to the A/R clean development mechanism (CDM) project activity does not cover more than 10 per cent of area</p>	<p>It is confirmed and checked during the site visit that no harmful techniques will be carried out during site preparation or planting. No use of chemicals/fertilizers. Planting is carried out manually. The planting procedure involves either by propagules or seedling. Further no ploughing of land required. Thus, no soil disturbance is attributed and even if it there , it would be minimal and does not cover more than 10% of the area. The same was also confirmed from the document "Mangrove nursery and planting techniques for some important mangrove species, dated January 2012" /67/.</p>

	<p>As per point 4 of clause 2.2 of the methodology AR-AM0014, project activity applying this methodology shall also comply with the applicability conditions of the tools contained within the methodology and applied by the project activity. The following are the tools referred in the methodology and its justification.</p> <p>a. Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities.</p> <p>b. This tool is not applicable to small-scale afforestation and reforestation project activities.</p> <p>2. Estimation of non-CO₂ GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity(version 04.0.0);</p> <p>a) The tool is applicable to all occurrence of fire within the project boundary.</p> <p>b) Non-CO₂ GHG emissions resulting from any occurrence of fire within the project boundary shall be accounted for each incidence of fire which affects an area greater than the minimum threshold area reported by the host Party for the purpose of defining forest, provided that the accumulated area affected by such fires in a given year is $\geq 5\%$ of the project area.</p> <p>3. Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities</p> <p>4. Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/RCDM project activities .</p> <p>5. Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity</p> <p>a. This tool is not applicable if the displacement of agricultural activities is expected to cause, directly or indirectly, any drainage of wetlands or peat lands.</p>	<p>a. The applicability condition of this tool is assessed and explained in section D.2.3.3 of this report .</p> <p>b. The proposed project is a large scale A/R project and the emission reductions generate from the project is more than 16ktCO₂ per year.</p> <p>2. During the site visit, it was checked that the plantation areas are covered with water and are subjected to low tide and high tide (also confirmed by means of aerial images /50/ /51/). Since most of the time the lands are submerged in water there is no need of any burning and also impossible to burn. Burning has not been any kind of management practice for mangrove replanting because of the tidal changes, also confirmed by means of Mangrove nursery and planting techniques for some important mangrove species /67/ and mangrove management handbook /68/.</p> <p>3. This tool is not used since dead wood and litter pools are not included in the project activity.</p> <p>4. PP has used this tool for estimation of change in carbon stock of trees in the project activity. There are no applicability conditions contained in this tool.</p> <p>5. Site visit reveals that the project will not apply any activity that implies any drainage of wetlands directly or indirectly. There are no displacements of activities exist, so this tool is not applicable.</p>
Findings	<p>For more information on how the CL is closed, please refer to Appendix-4 of the report.</p> <p>CL7 is closed.</p>	

Conclusion	RINA hereby confirms that the selected baseline and monitoring methodology has been previously approved by the CDM Executive Board, and is applicable to the Project, which complies with all the applicability conditions therein and in line with para 97 – 104 of CDM VVS of PoA, version 02.
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D.2.3.2. Project boundary, sources and GHGs

Means of validation	<p>The proposed CPA involves reforestation/restoration/ afforestation of degraded mangrove habitats, which will be along the coastline of the Republic of the Union of Myanmar, resulting in increased area under mangroves. The PP has confirmed to provide the details of the project area included in each CPA in the form of KML and shape file /49/. Further, RINA auditors will conduct ability assessment of the project area by using satellite imagery files and Google earth imagery and other GIS files /50/ /51/. The PP has confirmed to include only the eligible parcels under the PoA. The land eligibility for each CPA as per the A/R tool “Demonstration of eligibility of lands for A/R CDM project activities (Version 02.0)” /18/ will be demonstrated at each inclusion of CPA. However, the validation team verified the eligibility of sample of the land area, which is part of the Kanyashe Public Protected Forest, proposed for the 1st CPA as discussed below:</p> <p>In order to distinguish forest land from non forest lands, the Myanmar forest threshold value were applied /34/, which are:</p> <ul style="list-style-type: none"> • A single minimum tree crown cover value of 10 per cent • A single minimum land area value of 0.1 hectare, and • A single minimum tree height value of 2 metres <p>The following steps are applied to assess eligibility of lands at project start date and on 31 December 1989:</p> <ol style="list-style-type: none"> 1. Vegetation on the land is below the forest threshold values applicable to the host party. 2. There are no young natural stands in the project area that can reach the forest definition threshold values. 3. The land is not a part of temporarily unstocked forest and the land will not revert to forest without the project activity. <p>The land of the project area does not contain forest at the start of the project. The lands mainly consist of grasslands with no shrubs and trees. The land of the project area is below the forest threshold values. The same was checked from the vegetation index map of Yangon Region, based on sentinel satellite imagery, for the year 12/2016 and 12/2019 /77/. It was further checked that the grasslands are land accretions, which remained under muddy land category and a small fraction under the severely degraded mangroves. The same was confirmed from 1988 satellite image (Thematic mapper)- Landsat 4 /51/ and confirmed during the local stakeholder meetings. However, even the severely degraded mangrove land area also got destroyed during the 2004 tsunami and no mangroves existed by 2005. Satellite images of 2005 indicated the planting areas covered with mud and water and no existence of mangroves. The same was cross checked with the 2005 satellite image – Landsat/Copernicus /51/. The satellite images of the year 2017, clearly indicates no mangroves exist and the same was also confirmed during the field verification and based on the land use type of Kanyashe PPF /50/, the land</p>
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	<p>areas falls under grass land, muddy land and severely degraded mangroves.</p> <p>Thus based on the Landsat images from 1988, 2005, 2017 and land use map 2015 ensures that the land of project implementation doesn't contain (i) forest at project start and since 31/12/1989 (ii) no young natural stands that can reach the forest definition and (iii) the land is not part of temporarily unstocked forest.</p> <p>As per clause 5.1 of the methodology, the PP has considered the relevant carbon pools and greenhouse gases for accounting. AR-AM0014 Version 3.0 "Afforestation and reforestation of degraded mangrove habitats", the carbon pools selected for accounting of carbon stock changes are discussed in the below table:</p> <table><tr><th>Carbon pool</th><th>Selected</th><th>Justification/explanation</th></tr><tr><td>Above ground biomass</td><td>Yes</td><td>Major carbon pool subject to the project activity.</td></tr><tr><td>Below ground biomass</td><td>Yes</td><td>Carbon stock in this pool is expected to increase due to the implementation of the ARR project activity.</td></tr><tr><td>Litter</td><td>No</td><td>Litter biomass is subjected to high turnover and displacement due to tidal currents. It is a conservative choice to exclude the pool from accounting because the project activity will not decrease the rate of accumulation of the litter.</td></tr><tr><td>Dead wood</td><td>No</td><td>Selection of this carbon pool is optional and the PP doesn't want to claim emissions from dead wood. The approach used is conservative.</td></tr><tr><td>Soil Organic Carbon</td><td>Yes</td><td>Carbon stock in this pool is expected to increase due to the implementation of the ARR project activity.</td></tr></table> <p>The validation of the project activity did not reveal other greenhouse gas emissions or removals occurring within the proposed project activity boundary as a result of the implementation of the proposed project activity which are expected to contribute more than 5% of total decreases in carbon pools and increases in emissions, or more than 5% of net anthropogenic removals by sinks, which are not addressed by CDM AR-AM0014 Version 3.0 /23/.</p>	Carbon pool	Selected	Justification/explanation	Above ground biomass	Yes	Major carbon pool subject to the project activity.	Below ground biomass	Yes	Carbon stock in this pool is expected to increase due to the implementation of the ARR project activity.	Litter	No	Litter biomass is subjected to high turnover and displacement due to tidal currents. It is a conservative choice to exclude the pool from accounting because the project activity will not decrease the rate of accumulation of the litter.	Dead wood	No	Selection of this carbon pool is optional and the PP doesn't want to claim emissions from dead wood. The approach used is conservative.	Soil Organic Carbon	Yes	Carbon stock in this pool is expected to increase due to the implementation of the ARR project activity.
Carbon pool	Selected	Justification/explanation																	
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Dead wood	No	Selection of this carbon pool is optional and the PP doesn't want to claim emissions from dead wood. The approach used is conservative.																	
Soil Organic Carbon	Yes	Carbon stock in this pool is expected to increase due to the implementation of the ARR project activity.																	
Findings	<p>CL8</p> <p>It is not clear on how the CME has defined the project boundary of each of the corresponding CPAs. Provide translated versions of land ownership documents. Also provide the land use maps.</p> <p>Formore information on how the CL is closed , please refer to Appendix-4 of the report.</p> <p>CL 8 is closed.</p>																		
Conclusion	<p>The validation team confirms that the identified GHG emission source occurring within the project boundary is CO₂ and no other gases are involved during the project activity. The same has been verified during the course of validation, which in</p>																		

	line with the applied methodology and para 105 – 110 of CDM VVS of PoA, version 02.
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D.2.3.3. Baseline scenario

Means of validation	<p>As per the methodology CDM AR-AM0014, the project proponent has demonstrated the additionality and baseline scenario through the application of the 'Combined tool to identify the baseline scenario and demonstrate additionality in AR CDM project activities' (version 1)/11/.</p> <p>The following steps have been followed:</p> <p>STEP 0. Preliminary screening based on the starting date of the A/R project activity</p> <p>The starting date of the A/R CDM PoA is 05/12/2018, which is as per the prior consideration form submitted to UNFCCC /36/. The same is accepted as it as per the Glossary: CDM terms, version 09.1 of 01/09/2017 /37/. It is checked that the incentives from the sale of carbon credits was seriously considered in the decision to proceed with the project activity, which was also cross checked with the certified true copy of the resolution passed at the meeting of the Board of Directors of EcoEye CO LTD, held at 05/11/2018 /38/. Hence the validation team concludes that the project participant was aware of CDM much before the start of the project activity and CDM credits were seriously considered in the decision to implement the project activity. It is also confirmed that the PPs have taken continuous and real actions to secure CDM status for the project in parallel with its implementation, which was checked from the chronology of events discussed in section C of the CDM PoA-DD /01/.</p> <p>STEP 1: Identification of alternative land use scenarios to the proposed A/R CDM project activity.</p> <p>Sub-step 1a: Identify credible alternative land use scenarios to the proposed A/R CDM programme activity.</p> <p>The following alternative land use scenarios have been identified as the plausible land use scenarios for the proposed A/R A/R CDM programme activity;</p> <ol style="list-style-type: none"> 1. Continuation of the pre-project land use which is the degraded and severely degraded lands or land accretions within degraded mangrove habitats which have grasses and dispersed mangroves. 2. Mangrove reforestation/restoration/afforestation of the land within the project boundary performed without being registered as a CDM PoA. 3. Conversion of project lands for agricultural activities, including cultivation of rice paddies. <p>The above mentioned alternatives were checked during the site visit and also confirmed by interviewing stakeholders. The above listed alternatives are in compliance with local laws, which do not require the restoration of degraded lands and does not prohibit or require that degraded mangrove areas be left to regenerate naturally, confirmed by interviewing Director of Forest Department, Yangoan /39/, constitution of the protected public forest , notification no 551/2015 /03/, notification no. 59/2019 /04/. The letter from the Ministry of Environmental Conservation and Forestry also have confirmed that these lands did not have any forests and are degraded /03/ /04/. Thus, the option of natural mangrove regeneration has not been considered as one of the alternative, which is accepted by RINA team. It is further noted that the Government policies in place have supported self-sufficiency in food production, which saw conversion of mangroves to rice paddies. However, the same is not applicable to the proposed project lands. Since the lands selected for the proposed PoA are classified as Protected Public Forest (PPF) lands and as per</p>
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the forest law , dated 20/09/2018 /73/ PPF lands are demarcated for the purposes of protection of water and soil, conservation of dry forests, conservation of mangrove forests, conservation of environment and biodiversity and conservation of forests for sustainable production of forest products. Thus, the proposed land will never be converted to agricultural lands and there is no impact on socio – economic aspects. It is further confirmed that the proposed lands were PPF by checking “The Government of the Republic of the Union of Myanmar, Ministry of Environmental Conservation and Forestry , Office of the Union Minister Notification Number (551/2015) dated 3/07/2015 and notification number (59/2019) dated 08/05/2019 /03/ /04/. Location map of Kanlyashe Protected Public Mangrove Forest (MAP No. 94 D/4) /74/. Authorization letter from the Ministry of Natural Resources and Environmental conservation. Forest Department – authorizing WIF to undertake the mangrove plantation activities in Kanlyashe PPF /05/. The validation team also checked the land use land cover classes of yanhon region for the proposed PoA as per FRA 2015 /76/ and the area has been classified under RF, PPF and proposed PPF /75/. The validation team also checked NDVI classified images for the year 2016 and 2019 /77/ and confirms that there is no existence of agricultural lands in the proposed areas.

Sub-step 1b. Consistency of credible alternative land use scenarios with enforced mandatory applicable laws and regulations

The project is in compliance with the following laws and regulations of the country

National Land Use Policy (2006) /6/

National Biodiversity Strategy and Action Plan 2015-2020 (2015) /7/

National Adaptation Programme of Action to Climate Change (2012) /8/

Myanmar Action Plan on Disaster Reduction 2012 /9/

National Sustainable Development Strategy (2009) /10/

National Environmental Policy (1994) /11/

Forest Policy (1995) Myanmar also submitted its new Climate Action Plan to the UN Framework Convention on Climate Change (UNFCCC) on September 2015. (Intended Nationally Determined Contribution-INDC)

The detailed Myanmar Laws and regulations to support the project activities are as follows /11/:

Forest Law (1992) /12/

Protection Of Wildlife And Conservation Of Natural Areas Law (1994) /13/

Myanmar Agenda 21/16/

Forestry Master Plan (2001-2030) /14/

Environmental conservation law (2012) /15/

Apart from the above RINA team also checked with the officers of forest depart on the laws and policies applicable to the project activity. This was further confirmed by chairman and village leaders of the respective village tract where the first CPA is going to be implemented /36/. Noted that the alternatives mentioned above are in compliance with the legal and regulatory requirements.

Outcome of Sub-step 1b: The following are the most plausible and credible alternative land uses to the CDM A/R project activity which are in compliance with all applicable legal and regulatory requirements of Myanmar.

Alternative 1: Continuation of the pre-project land use which is the degraded, severely degraded and land accretions within degraded mangrove habitats.

Alternative 2: Mangrove reforestation/ restoration and afforestation of the land within the project boundary performed without being registered as a CDM A/R project.

STEP 2. Barrier analysis

Sub-step 2a. Identification of barriers that would prevent the implementation of at least one alternative land use scenarios.

The barriers considered are:

- Investment Barrier, other than insufficient financial returns

Investment Barrier, other than insufficient financial returns

As discussed in the PoA-DD, the main objective of the project is to establish and maintain a sustainably managed mangrove ecosystem for carbon sequestration, natural disaster risk reduction, poverty reduction with sustainable livelihoods in the coastal communities. It is to be also noted that the project does not generate any kind of revenue in terms of timber production or wood harvesting. The project is completely a non-profitable activity, with the intention to support the livelihoods of local community, by means carbon revenue generated from the proposed project.

Looking at the past history of similar mangrove reforestation projects in Myanmar, it is noted that the projects have only been implemented with grants or other non-commercial finance terms (Government funds). Myanmar Government (Forest Department) has reforested mangroves mainly in Bogalay, Laputta and Pyarpon townships between the period of 2008-2016 on an area of 1,943 ha have been planted in Bogalay (242 ha/year) while an area of 1,781 ha have been planted in Laputta (222 ha/year). An area of 951 ha have been planted in Pyarpon between the period 2009-2016 (136 ha/year) /40/. The local NGO, Mangrove Service Network (MSN) has established around 575 ha of mangroves over the period of 2013-2017 with the funding from POSCO DAEWOO in Rakhine State (115 ha planting per year) /41/. Another local NGO, Forest Resource Environment Development and Conservation Association (FREDA) has planted 2,940 ha of mangroves in Pyarpon Township (Ayeyarwaddy Region) over a period of 20 years (147 ha planting per year) funded by different agencies /42/. In the past the planting of mangroves have been less than 150 ha per year by any NGO due to different constraints. Being a least developed country, the actual status or the data for the above referred plantation activities is not clear. The extent to which the mangrove plantation activity has already diffused in the geographical area of the proposed A/R PoA is further explained in “common practice analysis”.

The PD demonstrates lack of access to capital by means of “Guidelines for objective demonstration and assessment of barriers”, version 01 of 16/10/2009 /25/. During the site visit, it was found that the project is implemented by WIF, with the support from from ECO Eye Co Ltd and local villager's /38/. WIF (Worldview International Foundation) is an international non-government organization (non-profit) /43/ and as discussed in above section, the other partners involved are the University of Patheingyi and local communities from three village tracts. WIF was established in 1979 /43/ and have been involved in projects in various issues: communication, health, agriculture and food security, environment, education, democracy and human rights. Worldview has worked in close cooperation with UN Agencies and other international and national partners. Checked that mangrove planation is the 2nd project for WIF, after successful implementation of 1 VCS project. During the audit, RINA checked the audited reports of WIF for the year 18-19 by Maung Maung Hteik and Associates, certified public accountants /44/. From the “statement of financial position of WIF” it is clear that the WIF lacks the capital to implement the proposed project activity. However, the project started with the financial support from Eco Eye Co Ltd, who is the CME for the proposed PoA. RINA checked the Budget proposed for mangrove plantation /45/, it is understood that though the project can be implemented with the available funds, however, to sustain throughout the crediting period, carbon credits are required. Moreover, the funds were assured only on the basis of CER credits /38/. It is also checked that no private capital is available from domestic or international capital markets due to real or perceived risks associated with investments in the country where the A/R project

activity is to be implemented, as demonstrated by the credit rating of the country. RINA team checked the credit rating of Myanmar which categorizes Myanmar a country considered as Extremely speculative /17/.

As per the interactions with the representatives of WIF /39/ and the contract between WIF and Eco Eye Co Ltd /35/, the entities involved in the financing is only Eco Eye Co Ltd and the only revenue from the project is the credits generated from the proposed project activity, which clearly demonstrates that revenues from the CDM project, alleviates the barrier.

Outcome of Step 2a: Thus, based on the above mentioned documents, it is demonstrated that the investment barrier and technological barriers are credible and realistic barriers that prevents the implementation of alternative 2 (Mangrove reforestation & restoration of the land within the project boundary performed without being registered as a CDM A/R project).

Sub-step 2b. Elimination of land use scenarios that are prevented by the identified barriers

As discussed in sub step-2a, alternative 2 (Mangrove reforestation & restoration of the land within the project boundary performed without being registered as a CDM PoA ARR project) has been eliminated due to investment barrier.

Outcome of Sub-step 2b: The land use types that are not prevented by any barriers are as follows.

Alternative 1: Continuation of the pre-project land use which is the degraded and abandoned lands

Sub-step 2c. Determination of baseline scenario (if allowed by the barrier analysis)

The steps involved in the decision tree has been followed in the CDM-PoA-DD, which results to baseline scenario : Continuation of the pre-project land use which is the degraded and abandoned lands.

Step 4 : Common Practice Analysis

The project is proposed to be implemented in Northern part of Ayeyarwady Division of Myanmar. However, the data on the forestry activities with similar scale in this region is not available and thus the host country, Myanmar is considered as the applicable geographical area for comparison with similar forestation activities.

It is checked that the out of the total forest areas, only 4% belongs to mangrove forests in Myanmar /46/. As discussed above in the barrier analysis, the following are the data available on the mangrove plantation activities:

Details of the Mangrove Plantation activities in Myanmar

Period	Implemented by	Area in ha	Ha/year	Funded by
2008-2016	Forest Dept.	1,943 in Bogalay	242	Government of Myanmar /40/
		1,781 in Laputta	222	
		951 in Pyarpon	136	
2013-2017	Mangrove Service Network (MSN)	575 in Rakhine state	115	POSCO, DAEWOO /41/
1999-2018	Forest Resource	2940 in Pyarpon	147	ACTMANG, EED, Lion

		Environment Development and Conservation Association (FREDA)	Township (Ayeyarwaddy Region)		Club, MERN, DKH, Postal /47/
	<p>However the percentage of survival data for the above mentioned plantation activities are not available. RINA further crosschecked the successful ratio of these projects with officials from forest department and local stakeholders and it is understood that there has not been any systematic reforestation/or restoration efforts carried out that will generate forests on a large scale in the region. This was further confirmed by means of NASA studies /28/. The National Biodiversity Strategy and Action Plan, 2011 /7/ states that more than 100,000 ha has been cultivated by the Government. However, NASA studies confirm that only 46,200 ha of mangroves were left in 2013 /28/. It is therefore evident that these cultivation efforts have not been successful in increasing the mangrove forest cover in the area. The majority of attempts simply involved planting but there have been practical difficulties in maintaining in the long run and protect the mangroves from external threats due to lack of effective management practices. Thus, RINA is of the opinion that the proposed project is different in nature from the rest of the other project discussed above. During the site visit and also during the course of validation, it was found that being a least developed country no much data is available on the similar activities. Moreover, as per the "Guidelines for objective demonstration and assessment of Barriers", version 01 /25/ "For projects in Least Developed Countries, it is sufficient to transparently describe the relevant barriers, as less stringency is needed with regards to data availability in the actual demonstration of barrier, as compared to the projects in other countries. Projects in Least Developed Countries are not bound by the provisions in this guideline and may use other approaches that are more adapted to the local circumstances. Thus, projects in Least Developed Countries can be assumed in general to face significant barriers to their implementation. At the same time, data availability in these countries is considerably limited which complicates the demonstration of additionality and therefore further increases transaction costs.</p> <p>In view of the above, the project activity would not be a common practice in the geographical region of analysis and it would, therefore, be additional and the proposed project activity is not the baseline scenario. RINA confirms that all data, rationales, assumptions, justifications, and documentation provided by the project participants to support demonstration of additionality are credible and reliable, which was checked and verified at the time of validation. RINA considers the reasoning for the proposed project additionality demonstration is credible and reasonable i.e. the proposed project has the ability to reduce anthropogenic emissions of greenhouse gases by sources below those that would have occurred in the absence of the registered CDM A/R PoA.</p>				
Findings	Please refer to section D.1.4 above.				
Conclusion	<p>The validation team confirms that the baseline is defined based on the most recent data available in conformance with the methodology. All assumptions and data used by PP are listed in PoA-DD and/or its annexures with references and sources. Relevant National/Sectoral policies and circumstances are considered and listed in the PoA-DD. The audit team confirms that the assumptions made in the demonstration of additionality are reasonable and that the project's additionality is well fundamented.</p>				

D.2.3.4. Estimation of emission reductions or net anthropogenic removals

Means of validation	<p>As per the methodology AR-AM0014, the baseline net GHG removals by sinks comprises of following components:</p> <p>Baseline Emissions:</p> $\Delta C_{BSL,t} = \Delta C_{TREE_BSL,t} + \Delta C_{SHRUB_BSL,t} + \Delta C_{DW_BSL,t} \quad \text{Equation (1)}$ <p>Where:</p> <p>$\Delta C_{BSL,t}$ = Baseline net GHG removals by sinks in year t; t CO₂e</p> <p>$\Delta C_{TREE_BSL,t}$ = Change in carbon stock in baseline tree biomass within the project boundary in year t, as estimated in the tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”; t CO₂e (AR-TOOL14)</p> <p>$\Delta C_{SHRUB_BSL,t}$ = Change in carbon stock in baseline shrub biomass within the project boundary, in year t, as estimated in the tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”; t CO₂e (AR-TOOL14)</p> <p>$\Delta C_{DW_BSL,t}$ = Change in carbon stock in baseline dead wood biomass within the project boundary, in year t, as estimated in the tool “Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities”; t CO₂e (AR-TOOL12)</p> <p>Section 5 of the above referred methodological tool AR-Tool 14 explains 3 conditions under which carbon stock and change in carbon stock may be estimated as zero. As per the tool the carbon stock in trees in the baseline can be accounted as zero if all of the underlying conditions therein the tool are met. Stratification for <i>ex ante</i> estimation of the actual net GHG removals by sinks will be done according to the year of planting. PP will establish sample plots as per the tool “Calculation of the number of sample plots for measurements within A/R CDM project activities” (version 02.1.0) /26/. Sample plots of 0.01 ha (100m²) with 10 m x 10m will be established systematically with a random start for each strata based on the year of planting. The same was confirmed during the site visit. During on-site audit, RINA visited the plots where plantation activities were in progress (50 ha) and also those areas where the plantations are not yet established. Site visit reveals that pre-project trees are neither harvested, nor cleared, nor removed due to implementation of the project activity. Further, no pre-project tree mortality issue occurs because of leaving enough space for these trees to grow and lastly these trees are not inventoried along with the project trees in monitoring of carbon stocks and the monitoring plan takes care of monitoring its continued existence within the project boundary. Hence, by following the conditions outlined in the methodological tool, RINA accept the argument on zero baseline</p> <p>Project emissions:</p> $\Delta C_{ACTUAL,t} = \Delta C_{P,t} - GHG_{E,t} \quad \text{Equation (2)}$ <p>Where:</p> <p>$\Delta C_{ACTUAL,t}$ = Actual net GHG removals by sinks, in year t; t CO₂e</p>
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$\Delta C_{P,t}$ = Change in the carbon stocks in project, occurring in the selected carbon pools, in year t; t CO₂e

$GHG_{E,t}$ = Increase in non-CO₂ GHG emissions within the project boundary as a result of the implementation of the A/R CDM project activity, in year t, as estimated in the tool “Estimation of non-CO₂ GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity”; t CO₂e

For calculating the change in the carbon stocks in project, occurring in the selected carbon pools in year t, PP has used the following equation as referred in the methodology:

$$\Delta C_{P,t} = \Delta C_{TREE_PROJ,t} + \Delta C_{SHRUB_PROJ,t} + \Delta C_{DW_PROJ,t} + \Delta SOC_{PROJ,t} \quad \text{Equation (3)}$$

Where:

$\Delta C_{P,t}$ = Change in the carbon stocks in project, occurring in the selected carbon pools, in year t; t CO₂e

$\Delta C_{TREE_PROJ,t}$ = Change in carbon stock in tree biomass in project in year t, as estimated in the tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”; t CO₂e

$\Delta C_{SHRUB_PROJ,t}$ = Change in carbon stock in shrub biomass in project in year t, as estimated in the tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”; t CO₂e

$\Delta C_{DW_PROJ,t}$ = Change in carbon stock in dead wood in project in year t, as estimated in the tool “Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities”; t CO₂e

$\Delta SOC_{PROJ,t}$ = Change in carbon stock in the soil organic carbon (SOC) pool within the project boundary, in year t; t CO₂e

Estimation of the changes in carbon stocks in shrub biomass assumed as zero since no shrubs are planted as part of this project. Similarly changes in carbon stocks in dead wood are also not estimated following the conservative approach outlined in the methodology. Whereas change in carbon stock in tree biomass and change in carbon stock in the soil organic carbon (SOC) pool within the project boundary are estimated by using the equations given in the below paragraphs.

The change in carbon stock in tree biomass will be estimated as per the requirements in the methodological tool AR-TOOL 14 Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities Version 4.2. As per the tool, the stock difference method was adopted and the ex-ante tree biomass was estimated using the method given in “Estimation by modelling of tree growth and stand development”, as presented in section 8 of the tool.

According to ‘Estimation by modelling of tree growth and stand development’ method, existing data (diameter etc) were used in combination with tree growth models to predict the growth of trees and the development of the tree stand over time. The annual growth rate of the mangrove is taken from the data provided by Mangrove Service Network (MSN) based on their experience in monitoring of mangrove growth for more than 15 years in the Myanmar region. / 52/. Apart from MSN data, PP has also used the research findings from ‘Carbon sequestration by mangrove plantations and a natural regeneration stand in the Ayeyarwady Delta, Myanmar by Ya Min Thant et al /53/ for evaluating the growth data for ex-ante estimation. RINA validated

these assumptions and found that they are appropriate for the project context.

For ex-ante estimation of carbon stock in tree biomass, PP has utilized the tool “Demonstrating appropriateness of allometric equations for estimation of aboveground tree biomass in A/R CDM project activities (Version 01.0.0)”. The tool states “For ex ante estimation of aboveground tree biomass in project scenario any allometric equation can be used.” Accordingly, PP has used an allometric equation given in Sukardjo & Yamada (1992) /54/.

However, for ex-post estimation, PP has adopted the method described in section II, paragraph 6 of the tool “Demonstrating appropriateness of allometric equations for estimation of aboveground tree biomass in A/R CDM project activities (Version 01.0.0)”, which specify to use a species-specific or group-of-species-specific allometric equation derived from trees growing in edapho-climatic conditions similar to those in the project area. Further, in Section J.5.3 of the PoA-DD, PP states that such allometric equation will be developed using the continued research data and research personal and using the permanent sample plots that have been set up within the project.

Estimation of the changes in carbon stocks in soil organic carbon:

$$\Delta SOC_{PROJ,t}$$

$$\Delta SOC_{PROJ,t} = \frac{44}{12} \times \sum_{t=1}^t A_{PLANT,t} \times dSOC_t \times 1 \text{ year} \quad \text{Equation (4)}$$

Where:

$\Delta SOC_{PROJ,t}$ = Change in SOC stock within the project boundary, in year t ,
t CO₂-e

$A_{PLANT,t}$ = Area planted in year t , ha

$dSOC_t$ = The rate of change in SOC stocks within the project boundary, in
year t , t C ha⁻¹ yr⁻¹.

The following default value of is used, unless transparent and verifiable information can be provided to justify a different value:

- (i) $dSOC_t = 0.50 \text{ t C ha}^{-1} \text{ yr}^{-1}$ for $t = t_{PLANT}$ to $t = t_{PLANT} + 20$ years,
where t_{PLANT} is the year in which planting takes place;
- (ii) $dSOC_t = 0 \text{ t C ha}^{-1} \text{ yr}^{-1}$ for $t > t_{PLANT} + 20$.

CME has confirmed to use the dSOC at each CPA level based on the below options:

- Default value from methodology
- SOC estimated from soil samples collected from the CPA area or any other transparent and verifiable information.

However, in the generic CPA, CME has opted for a default value of 0.50 tc/ha/year, as per paragraph 17 of the methodology AR-AM0014, version 03 /23/.

Leakage emissions:

As per section 5.6 of the methodology AR-AM0014 Version 3, leakage is to be estimated as follows:

	$LK_t = LK_{AGRIC,t}$ <p style="text-align: right;">Equation (5)</p> <p>Where:</p> <p>LK_t = GHG emissions due to leakage, in year t; t CO₂-e</p> <p>$LK_{AGRIC,t}$ = Leakage due to the displacement of agricultural activities in year t, as estimated in the tool “Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity”; t CO₂-e</p> <p>The net anthropogenic GHG removals by sinks shall be calculated as follows:</p> $\Delta C_{AR-CDM,t} = \Delta C_{ACTUAL,t} - \Delta C_{BSL,t} - LK_t$ <p style="text-align: right;">Equation (6)</p> <p>Where:</p> <p>$\Delta C_{AR-CDM,t}$ = Net anthropogenic GHG removals by sinks, in year t; t CO₂-e</p> <p>$\Delta C_{ACTUAL,t}$ = Actual net GHG removals by sinks, in year t; t CO₂-e</p> <p>$\Delta C_{BSL,t}$ = Baseline net GHG removals by sinks, in year t; t CO₂-e</p> <p>LK_t = GHG emissions due to leakage, in year t; t CO₂-e</p> <p>As per the methodology AR-AM0014, Version 3.0, “Afforestation and Reforestation of degraded mangrove forest” Leakage due to the displacement of agricultural activities in year t must be, estimated as per the tool “Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity”; version 02.0. According to the same tool, leakage due to displacement of agricultural activities (i.e. refers to crop cultivation activities and grazing activities occurring on land) has to be accounted for.</p> <p>However, the physical inspection of the site and interview with the stakeholders reveals that the project area is not used for any pre-project agricultural activities like crop cultivation or grazing activities. The same was also confirmed from the NDVI classified images for the year 2016 and 2019 /77/, which confirms that there is no existence of agricultural lands in the proposed areas. Moreover, the proposed lands are PPF /04/ /05. Most of the project area belongs to salt marshes, and grazing is not possible to occur in such lands. Hence there are no associated leakage emissions due to the implementation of project activity. Hence it is accounted as zero.</p>
Findings	N/A
Conclusion	<p>All assumptions and data used by the project participants are listed in the general CPA-DD and related document submitted for registration. The data are properly referenced and all documentation is correctly quoted and interpreted /83/. All values used can be deemed reasonable in the context of the CPA.</p> <p>The data and parameters which are fixed ex ante are clearly identified and in line with the methodology and applicable tools.</p>

D.2.3.5. Monitoring plan

Means of validation	<p>Validation team based on the review of PoA-DD and discussion with CME and CPA implementer during the site visit confirms that clear and transparent description of the operational and management arrangements have been established by the CME for the PoA. All the details of individual CPAs including the documents shall be controlled by CPA implementer. Furthermore the records of individual CPAs shall also be maintained by the CME. Individual CPA implementer shall sign an agreement with the CME and agrees to comply with all terms and conditions of the PoA including those related to the monitoring and data control. The same has been</p>
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	<p>confirmed from the review of template agreement between the CPA implementers and the CME where the eligibility criteria for the inclusion of the CPA in PoA are mentioned /35/ /30/. Hence any CPA which would be included in the PoA shall follow the operation and management plan of the PoA as stated in the PoA-DD and signed agreement.</p> <p>The CME has a well-defined project management structure for monitoring of the CPA which can be verified from the PoA-DD.</p> <p>More information on the sampling is discussed in section section C.4 of the report.</p> <p>The monitoring plan describes the field measurement procedures, collection of data, roles and responsibilities of staff and archiving data, QA and QC procedures, data storage etc. All the monitoring data is stored / will be recorded and kept for a period of crediting period + 2 years or the last issuance of CERs + 2 years whichever occurs later by CME</p>
Findings	<p>CAR7</p> <ol style="list-style-type: none"> 1.The monitoring plan is not transparent on the responsible person/entity who/that will undertake the measurements; 2. The calibration procedures to be applied and the responsible person/entity who/that will perform the calibration. 3. Specifications of the calibration frequency for the measuring equipment. 4. The operational and management structure to be put in place to implement the monitoring plan; 5. Provisions to ensure that data monitored and required for verification and issuance are kept and archived for at least two years after the end of the final crediting period or the last issuance of CERs, whichever occurs later; 6. Definition of responsibilities and institutional arrangements for data collection and archiving. <p>For more information , please refer to Appendix-4 of the report.</p> <p>CAR7 is closed.</p>
Conclusion	<p>The monitoring plan has been documented as per the methodology AR-AM0014 (Afforestation and reforestation of degraded mangrove habitats), in a complete and transparent manner. The monitoring plan for the CPA is as described in Section J.6 of PoA DD.</p> <p>The validation team based on document review and interviews with the relevant personnel confirm that the proposed monitoring plan is feasible within the project design. Further, the monitoring methodology, data management, and quality assurance and quality control procedures to be implemented in the context of the project will be implanted by PoA managing entity and the CPA implementers. Therefore, the PoA managing entity and/or CPA implementer(s) will be able to implement the monitoring plan and the achieved emission reductions can be reported and verified.</p>

D.2.4.Crediting period type and duration

Means of validation	PP has selected renewable crediting peiod of 20 years, which renewable 3 times. The duration of the PoA is 60 years for the the proposed CDM A/R PoA, counting from the start date of the PoA-DD i.e. 05/12/2018.
Findings	N/A
Conclusion	RINA team confirms that the CME has defined the type and uration of the crediting period applicable to all corresponding CPAs in accordance with the relevant requirements in the "CDM project standard for programmes of activities .

D.2.5. Eligibility criteria for inclusion of CPAs

No.	Eligibility criterion – Category/Required condition	Means of validation	Findings	Conclusion
1.	The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA	The CPA and all project activities should be located within the geographical boundaries of the Republic of the Union of Myanmar. Coordinates of Myanmar are 19° 04' 24.47" N Longitude: 96° 40' 15.74" E	It is not clear, if this can be also checked with the contract in place between the CME, CPA implementer and PP.	During the inclusion of the CPA, the DOE will check the shape files/kml files of each land parcel included in the CPA. Further to this the DOE will also check the contracts between the CPA implementer and local communities/Forest Department/Government, which confirms the area of plantation and also the landownership documents.
2.	Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations	<p>Carbon emission reductions claimed by the CPA should be unique and not counted more than once</p> <p>CPAs shall use only AR-AM0014 ver 03.0;</p> <p>If the crediting period of the CPA is less than the crediting period of the PoA, emission reductions will only be claimed for the duration of the crediting period of the PoA and any emission reductions generated beyond that will be removed from the CPA.</p> <p>The locations where project activities will be implemented will be clearly demarcated and recorded through GPS and shapefiles will be created.</p> <p>These maps will clearly show that the areas under each CPA do not overlap.</p> <p>Only trees planted within the boundary of the selected lands will be accounted for during ER estimations</p> <p>The CPA-DD will contain only one methodology i.e. AR-AM0014 ver 03.</p>	Not clear on the measures ensured by the CME to make sure there is no double counting of the CPAs and the ways to cross check the same. Also, clarify, on how the contract signed between CPA implementer and local communities ensure there is no double counting.	For each CPAs included in the project, the CPA implementer will sign a contract with the CME. Also, the CPA implementer will have contracts with the local communities/Forest Department/Government, which confirms the land area, including the name of the villages. Each CPA can be identified based on the geo-coordinates and the records for the same are maintained by CME to make sure there is no double counting.
3.	Conditions to check the start date of the	Date of start of project activities of the CPA should	It is not clear if the start of the	1. The land preparation dates will be considered

No.	Eligibility criterion – Category/Required condition	Means of validation	Findings	Conclusion
	CPA through documentary evidence	<p>be after start date of PoA. Date of first signing contract between CME & PP for implementation of project activity.</p> <p>Project Records maintained for monitoring and project documentation by the CPA.</p> <p>The date of start of land preparation will be used as the start date.</p>	CPA considered as the date of first signing contract between CME & PP for implementation of project activity. PP to clarify on how the same is as per the Glossary of CDM terms.	<p>as the start date for the CPA.</p> <p>2. Documents must be in line with the Glossary of CDM terms.</p> <p>At the time of inclusion request of any proposed CPA, CME shall submit the mentioned documents to the DOE who will be performing validation for the consistency and integrity check. This eligibility criteria will ensure CPA start date should not be before start date of the PoA.</p>
4.	Conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by CPAs	CPAs shall use only AR-AM0014 ver 03.0. For all CPAs that will be included in this program, the use of applicable methodology shall be justified.	Please refer to section D.2.2.1	The DoE will check and assess on each applicability criteria of the methodology AR-AM0014 ver 03.0. is met.
5.	The conditions that ensure that the CPA meets the requirements pertaining to the demonstration of additionality	Each CPA that will be included shall meet the additionality criteria inline with the PoA which was demonstrated through Barrier analysis as per A/R – Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities” (Version 01)	Refer to section D.1.4	<p>All CPAs included shall demonstrate additionality at the CPA level as per the discussion provided in section C of the PoA-DD. Validation team based on review of PoA-DD /1/ confirms that the eligibility criteria is defined in accordance with the project standard.</p> <p>Furthermore, the eligibility criterion – category, including the conditions provide sufficient information for the corresponding CPAs. The description in the PoA-DD including the supporting evidence for inclusion provides information to meet the requirement and is verifiable as well as sufficiently objective and comprehensive to permit</p>

CDM-PoA-VAL-FORM

No.	Eligibility criterion – Category/Required condition	Means of validation	Findings	Conclusion
				the assessment of the inclusion of corresponding CPAs in the proposed PoA.

No.	Eligibility criterion – Category/Required condition	Means of validation	Findings	Conclusion
6.	The PoA- specific requirements stipulated by the CME including any conditions related to undertaking local stakeholder consultations and environmental impact analysis	<p>The local stakeholder consultation has been conducted at the PoA level, details and justification of which have been elaborated in section G of this document.</p> <p>As long as the CPA falls within the geographical and political boundary of Myanmar, there is no need for an EIA.</p> <p>For the local stakeholder consultation, Minutes of meeting, attendance records, invitation letters, etc. will be provided as means of evidence.</p> <p>Therefore, criterion is objective and comprehensive to allow assessment and inclusion of the CPA into the registered PoA.</p>	Please refer to D.1.8	As per the PoA DD /1/, the local Stakeholder Consultation (LSC) is to be conducted at the PoA Level. Validation team confirms that this eligibility criterion has been sufficiently set for all CPAs as per §124(i) of the CDM project standard for programmes of activities, version 2.0. The referenced documents are assessed to be appropriate to show fulfilment of the criterion.
7.	Conditions to provide an affirmation that funding from Annex I Parties, if any, does not result in a diversion of official development assistance	Affirmation from the CPA implementer or CME to show that if there is funding from Annex 1 parties, there is no diversion of ODA.	Affirmation document to be checked.	<p>Affirmation document to be checked at each CPA inclusion, in case there is funding from Annex-1 parties.</p> <p>Validation team confirms that this eligibility criterion has been sufficiently set for all CPAs as per §124 (j) of the CDM project standard for programmes of activities, version 02.0. Validation team based on review of PoA-DD /1/ confirms that the eligibility criteria is defined in accordance with the project standard.</p>
8.	The conditions related to sampling requirements for the PoA in accordance with the “Standard	CPAs under the program will adhere to all requirements as mentioned in Standard for sampling and surveys for	N/A	The number of samples and sample size for each CPA will be determined using “Calculation of the

No.	Eligibility criterion – Category/Required condition	Means of validation	Findings	Conclusion
	for sampling and surveys for CDM project activities and programme of activities	<p>CDM project activities and programme of activities ver 07.0.</p> <p>A minimum 90% confidence interval and a 10% margin of error requirement is achieved for the sampled parameters.</p> <p>The sampling requirement can be checked in the sampling plan in CPA- DD. Therefore, this can be considered as verifiable evidence.</p>		<p>number of sample plots for measurements within A/R CDM project activities (Version 02.1.0)". A minimum 90% confidence interval and a 10% margin of error requirement is achieved for the sampled parameters. The sampling plan in each CPA will be demonstrated as per the discussions in section J.6.2 of the CPA-DD.</p> <p>Validation team confirms that this eligibility criterion has been sufficiently set for all CPAs as per §124 (I) in the CDM project standard for programmes of activities, version 02. This is also in line with the approved standard Sampling and surveys for CDM project activities and programme of activities" Version 07.0.</p>

No.	Eligibility criterion – Category/Required condition	Means of validation	Findings	Conclusion
9	Conditions to confirm that CPAs are neither registered as CDM project activities, included in another registered PoAs, nor the project activities that have been deregistered	<p>There will be a declaration by CPA implementer and CME on this matter.</p> <p>The criterion deems objective and comprehensive to allow assessment and inclusion of the CPA into the registered PoA.</p>	Not discussed in PoA-DD	<p>Declaration letter from the CPA implementer to CME to be checked at the CPA level.</p> <p>Validation team confirms that this eligibility criterion has been sufficiently set for all CPAs in line with §124 © of the CDM project standard for programmes of activities, version 2.0.</p>
10	Conditions to ensure the compliance with other requirements of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents	CPAs under the program will adhere to all requirements as mentioned in applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents.	Not discussed in PoA-DD	<p>The DoE will check and assess the CPA against each requirement of the methodology AR-AM0014 ver 03.0. is met and the methodological tools.</p> <p>Validation team confirms that this eligibility criterion has been sufficiently set for all CPAs in line with §124 (h) of the CDM project standard for programmes of activities, version 2.0.</p>
11	Awareness and agreement of those operating a CPA on PoA subscription.	Contractual provisions to ensure that those operating the CPA are aware and have agreed that their activity is being subscribed to the PoA	N/A	Letter from each CPA implementer to the CME stating that they are aware of the CPA and agreed that their project is being included in the PoA.
12	Specification of the technology/measure, such as the level and type of service, as well as performance specification based on, inter alia, testing/certification	<p>The CPAs will be included in the proposed PoA only if the following conditions are met:</p> <p>CPAs will be included if project activities include</p> <ul style="list-style-type: none"> •Restoration/Reforestation of Degraded Mangrove Habitats 	N/A	The land eligibility needs to be checked as per the discussions in section D.1.2, i.e. land eligibility is demonstrated in detailed with evidences at each CPA level as per the requirements of the latest version of the A/R methodological Tool

No.	Eligibility criterion – Category/Required condition	Means of validation	Findings	Conclusion
		<ul style="list-style-type: none"> •Afforestation of mangroves on land accretions/grasslands within degraded mangrove habitats 		<p>Demonstration of eligibility of lands for A/R CDM project activities” /18/.</p> <p>The eligibility of the land will be checked against the satellite images, project boundary shape file, kml files and land use images /49/ /50/ /51/, which confirms that the land allocated for the proposed project is well the forest threshold /34/ or and afforestation of land that has not been forested for a period of at least 50 years as per the definition of glossary of CDM terms , version 09.1 of 01/09/2017 /37/. In addition to the above, the following documents would be also used to cross check.</p> <p>Land classification documents confirming the lands subjected to CPAs are PPF and proposed PPF lands.</p>

SECTION E. Internal quality control

The draft final validation report before being submitted to the client will be/is subjected to an independent technical review to confirm that all validation activities has been completed according to the pertinent RINA’s procedures. The technical review will be/is performed by a technical reviewer(s) qualified in accordance with the RINA’s qualification procedure.

SECTION F.Validation opinion

>> RINA has undertaken the validation of PoA, “Restoration of degraded mangroves as a climate change mitigation and adaptation strategy in Asia” in Myanmar. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism, CDM Validation and Verification Standard for Programme of Activities (VVS-PoA) Version 02.0 and host country criteria.

The purpose of the PoA is to reforest/ restore degraded or severely degraded mangrove habitats as well as afforest grassy land accretions within degraded mangrove habitats along the coastline of the Republic of the Union of Myanmar, resulting in increased area under mangroves. As a result, the project results in net anthropogenic GHG removal of CO₂ that are real, measurable and give long-term benefits to the mitigation of

climate change. It is demonstrated that the project is not a likely baseline scenario. GHG removals are attributable to the project are hence additional.

The monitoring arrangements described in the monitoring plan are feasible within the PoA-DD and it is RINA's opinion that the CME and project participants are able to implement the monitoring plan.

In summary, it is RINA's opinion that the PoA "Restoration of degraded mangroves as a climate change mitigation and adaptation strategy in Asia" in Myanmar" as described in the PoA-DD , version 2.1 dated 02/06/2020 meets all relevant UNFCCC requirements for the CDM as well as the host country's national requirements and correctly applies the baseline and monitoring methodology AR-AM0014 Version 3.0. dated 04/10/2013.

Appendix 1. Abbreviations

Abbreviations	Full Texts
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CDM-PCP	Clean Development Mechanism Project Cycle Procedure
CDM-PS	Clean Development Mechanism Project Standard
CDM-VVS	Clean Development Mechanism Validation and Verification Standard
CER(s)	Certified Emission Reduction(s)
CH ₄	Methane
CL	Clarification Request
CME	Coordinating and Managing Entity
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CP	Certification Program
CPA	Component Programme Activities
CPA-DD	Component Project Activity Design Document
DD	Design Document
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EIA	Environmental Impact assessment
ER	Emission Reductions
FAR	Forward Action Request
FAO	Food and Agriculture Organization
GHG(s)	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LDC	Least Developed Country
LoA	Letter of Approval
MoV	Means of Verification
MOC	Modalities of Communication Statement
MoU	Memorandum of Understanding
MSC	Micro Scale
MSN	Mangrove Service Network
MP	Monitoring Plan
MR	Monitoring Report
NGO	Non-governmental Organization

ODA	Official Development Assistance
PDD	Project Design Document
PE	Project Emission
PoA	Programme of Activities
PoA-DD	CMD Programme of Activities Design Document
PP(s)	Project Participant(s)
Ref.	Document Reference
RINA	RINA Services Spa
SS(s)	Sectoral Scope(s)
TA(s)	Technical Area(s)
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
WIF	Wordview International Foundation

Appendix 2.Competence of team member and technical reviewers



CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

Dhanya NAMBIAR

è qualificato come¹:
is qualified as:

CDM – VAL, TEC

per le seguenti aree tecniche:
for the following technical areas:

1.2, 2.1, 13.1, 13.2

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Renewables	1
2.1	Electricity Distribution	2
13.1	Solid waste and wastewater (limited to landfill)	13
13.2	Manure	13

in accordo alle istruzioni della Unità Certification Innovation and Sustainability.
in accordance with the instructions of the Certification Innovation and Sustainability Unit.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	03/05/2019	First issue
1	15/11/2019	Update qualification with "Sampling and surveys for CDM PAs and PoAs"

Il Resp. CEINS
Head of CEINS

¹ Legend:

VAL: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
FIN-EXP: Financial Expert
DET: Determiner

CDM: Clean Development Mechanism
VCS: Verified Carbon Standard
GS4GG: Gold Standard For Global Goals
SCS: Social/Carbon Standard
JI: Joint Implementation

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS

RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS4GG Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports



**CERTIFICATO DI QUALIFICA
QUALIFICATION CERTIFICATE**

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

Rekha MENON

è qualificato come¹:
Is qualified as:

**CDM-TEC, -VAL, -VER, -TL
ITRP, REG-EXP²**

per le seguenti aree tecniche:
for the following technical areas:

1.2, 2.1, 13.1, 13.2, 14.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Renewables	1
2.1	Electricity Distribution	2
13.1	Solid Waste and wastewater	13
13.2	Manure	13
14.1	Afforestation and reforestation	14

In accordo alle istruzioni dell'Unità Certification Innovation & Sustainability.
In accordance with the Instructions of the Certification Innovation & Sustainability Unit.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	06-03-2008	-
13	14-11-2019	Update qualification with "Sampling and surveys for CDM PAs and PoAs"

Il Resp. CEINS
Head of CEINS

¹ Legend:

VAL: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
FIN-EXP: Financial Expert
DET: Determiner

CDM: Clean Development Mechanism
VCS: Verified Carbon Standard
GS: Gold Standard
SCS: SocialCarbon Standard
JI: Joint Implementation

² India, Indonesia, Malaysia, Myanmar, Vietnam, Cambodia, Laos, Sri Lanka, Nepal, China, Philippines, Thailand, Iran, Congo

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologic Institute per condurre la Validazione e la Verifica di rapporti SCS

RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologic Institute, to carry out Validation and Verification of SCS Reports

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Page 1 of 1



CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:

Geisa Maria Principe BRANCO SAETTONI

We declare that Mr/Mrs/Ms:

è qualificato come:
is qualified as:

CDM-TEC, VAL, VER, TL, ITRP, REG-EXP²

per le seguenti aree tecniche:
for the following technical areas:

1.1, 1.2, 13.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.1	Thermal Energy generation	1
1.2	Energy generation from renewable energy sources	1
13.1	Waste Handling and Disposal	13

in accordo alle istruzioni della Unità Certification Innovation and Sustainability.
in accordance with the instructions of the Certification Innovation and Sustainability Unit.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	27-08-2009	-
10	31-03-2017	Added qualification as ITRP
11	07/12/2018	Added qualification as REG-EXP
12	15/11/2019	Update qualification with "Sampling and surveys for CDM PAs and PoAs"

Il Resp. CEINS
Head of CEINS

¹ Legend:

VAL: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
FIN-EXP: Financial Expert
DET: Determiner

CDM: Clean Development Mechanism
VCS: Verified Carbon Standard
GS: Gold Standard
SCS: Social/Carbon Standard
JI: Joint Implementation

² Argentina, Perú, Colombia, Mexico, Honduras, Panama, Dominican Republic, Guatemala

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS

RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports

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CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

Talita CARVALHO BECK

è qualificato come¹:
is qualified as:

CDM -TEC, -VAL, -VER, -TL, REG-EXP²

per le seguenti aree tecniche:
for the following technical areas:

1.2, 13.1 (limited to landfill), 14.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Renewables	1
13.1	Solid waste and wastewater (limited to landfill)	13
14.1	Afforestation and reforestation	14

in accordo alle istruzioni della Unità Certification Innovation and Sustainability.
in accordance with the instructions of the Certification Innovation and Sustainability Unit.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	19/09/2012	-
6	17/10/2016	Update qualification with TA 13.1
7	20/09/2018	Update qualification with TA 14.1 and REG-EXP
8	15/11/2019	Update qualification with "Sampling and surveys for CDM PAs and PoAs"

Il Resp. CEINS
Head of CEINS

¹ Legend:

VAL: Validator
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² Brazil, Paraguay, Nicaragua, Colombia, Dominican Republic, England.

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Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	EcoEye Co.Ltd.	CDM-AR-PoA-DD-FORM for the project titled “Restoration of degraded mangroves as a climate change mitigation and adaptation strategy in Asia”	Version 1.0 of 23/03/2019 , Version 2.0 of 07/11/2019 and version 2.1 of 02/06/2020	PP
2	CDM Executive Board	Demonstrating appropriateness of allometric equations for estimation of aboveground tree biomass in A/R CDM project activities”	version 01.0.0, dated 25/11/2011	Others
3	The Government of the Republic of the Union of Myanmar, Ministry of Environmental Conservation and Forestry	Constitution of the protected public forest , notification no 551/2015	Dated 03/07/2015	PP
4	The Government of the Republic of the Union of Myanmar, Ministry of Environmental Conservation and Forestry	Constitution of the protected public forest , notification no 59/2019	Dated 08/05/2019	PP
5	The Government of the Republic of the Union of Myanmar, Ministry of Environmental Conservation	Confirmation of the land area for Mangrove plantation establishment in line with A/R CDM Project Activity	Dated 12/06/2019	PP

	and Forestry			
6	National land use policy of Myanmar	http://www.fao.org/faolex/results/details/en/c/LEX-FAOC152783/	English Language, last accessed on 14/05/2019	
7	National Biodiversity Strategy and Action Plan 2015-2020 (2015)	http://www.fao.org/faolex/results/details/en/c/LEX-FAOC161482/	English Language, last accessed on 14/05/2019	
8	National Adaptation Programme of Action to Climate Change	http://www.fao.org/faolex/results/details/en/c/LEX-FAOC152937/	English Language, last accessed on 14/05/2019	
9	Myanmar Action Plan on Disaster Reduction 2012	http://www.fao.org/faolex/results/details/en/c/LEX-FAOC142708/	English Language, last accessed on 14/05/2019	
10	National Sustainable Development Strategy (2009)	http://www.fao.org/faolex/results/details/en/c/LEX-FAOC152933/	English Language, last accessed on 14/05/2019	
11	Laws and regulations including (National Environmental Policy (1994))	http://www.forestlegality.org/risk-tool/country/myanmar	English Language, last accessed on 14/05/2019	
12	Forest Law (1992)	http://www.fao.org/faolex/results/details/en/c/LEX-FAOC003290/	English Language, last accessed on 14/05/2019	
13	Protection of Wildlife and Conservation of Natural Areas Law (1994)	http://www.fao.org/faolex/results/details/en/c/LEX-FAOC139132/	English Language, last accessed on 14/05/2019	
14	Forestry Master Plan (2001-2030) :	http://www.fao.org/forestry/14871-095a15477c1192458cbb5d861551416d6.pdf	English Language, last accessed on 14/05/2019	

15	Environmental conservation law (2012)	http://www.fao.org/faolex/results/details/en/c/LEX-FAOC139025/	English Language, last accessed on 14/05/2019	
16	Myanmar Agenda 21	http://www.un.org/esa/agenda21/natlinfo/countr/myanmar/natur.htm	English Language, last accessed on 14/05/2019	
17	Trading Economics	Credit ratings: https://tradingeconomics.com/myanmar/rating	English Language, last accessed on 21/10/2019	
18	CDM Executive Board	Demonstration of eligibility of lands for A/R CDM project activities	version 02.0, dated 04/10/2013	-
19	CDM Executive Board	Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"	version 04.2 dated 24/07/2015	-
20	CDM Executive Board	Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities"	version 03.1, dated 24/07/2015	-
21	CDM Executive Board	Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity	version 02.0, dated 04/10/2013	-
22	CDM Executive Board	Estimation of non-CO2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity'	version 04.0.0, dated 25/11/2011	-
23	CDM Executive Board	Approved large scale CDM methodology AR-AM0014 "Afforestation and reforestation of degraded mangrove habitats",	Version 3.0, dated 04/10/2013	-
24	CDM Executive Board	Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities".	Version 01 dated 19/10/2007	-
25	CDM Executive Board	Guidelines for objective demonstration and assessment of barriers.	Version 01 of 16/10/2009	-
26	CDM Executive Board	Calculation of the number of sample plots for measurements within A/R CDM project activities.	Version 02.1.0 of 26/11/2010	-
27	Ministry of Environmental Conservation and Forestry, The Government of the Republic of the Union of Myanmar	Environmental Impact Assessment procedure	29/12/2015	PP
28	NASA	Myanmar ecological forecasting : utilizing NASA earth observations to monitor, map analyse mangrove forests in	May 2014	PP

CDM-PoA-VAL-FORM

		Myanmar for enhanced conservation,		
29	MSN	Mangrove plantation in Rakhine area by Mangrove Service Network		PP
30	-	PoA management system: CME and CPA implementer manual	Version 01 of 06/2019	PP
31	Eco Eye Co Ltd	Operation and Management structure	02/08/2019	PP
32	WIF	Organizational structure and QA/QC for mangrove restoration projects in Myanmar	Version 2.1 of 02/2019	PP
33	Ministry of Natural resources and Environmental conservation	Letter of Approval and authorization Addendum to existing LoA	Dated 24/05/2019 , dated 31/10/2019	PP
34	CDM Executive board	Myanmar minimum selected values for A/R project activities le https://cdm.unfccc.int/DNA/index.html	Last accessed on 05/11/2019	Others
35	-	Agreement on joint project development, implementation and management between Eco Eye Co Ltd and WIF	Dated 31/05/2019	PP
36	CDM Executive Board	Prior consideration https://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html	Last accessed on 05/11/2019	Others
37	CDM Executive Board	Glossary : CDM terms	Version 10 of 12/09/2019	Others
38	Eco Eye Co Ltd	Board Minutes on investment decision	Dated 05/11/2018	PP
39	RINA	Stakeholder interview sheet	Dated 14/05/2019 to 16/05/2019	PP
40	-	Mangrove plantation in Ayerwady region by forest dept.	-	PP
41	MSN	Mangrove plantation in Rakhine area by Mangrove Service Network	-	PP
42	FREDA	http://fredamyanmar.org/?page_id=174 , in English Language , last accessed on 14/05/2019	-	PP
43	WIF	Company registration certificate of WIF		PP
44	Maung Maung Hteik and Associates	Audited reports of WIF for the year 2018 to 2019	-	PP
45	WIF	Budget estimates for Mangrove plantation project		PP
46	-	Mangrove Research Team, Patheingyi University: Preliminary Report on Area Survey for Mangrove Park (PUR/01) At MaGyi, Ayeyarwady		PP
47	-	Myanmar Agenda 21 : http://www.un.org/esa/agenda21/natlinfo/countr/myanmar/natur.htm , in English Language, last accessed on 15/05/2019		PP
48	NASA	Myanmar ecological forecasting : utilizing NASA earth observations to monitor, map analyse mangrove forests in	-	PP

		Myanmar for enhanced conservation, May 2014		
49	WIF	Shape files and KML files of the proposed CPA1 of 52.84 ha		PP
50	Google earth	Land use maps of the proposed CPA1		PP
51	WIF	Landsat images of the proposed CPA1, 1988, 2005 and 2017		PP
52	Mangrove Service Network	Annual growth rate of Mangroves in Ayeyarwady region for Rhizophora and Bruguiera species	dated 05/01/2017	PP
53	-	Carbon sequestration by mangrove plantation and a natural regeneration stand in the ayeyarwady delta region, Myanmar by Ya Min Thant	dated 30/06/2012	PP
54		Allometric equation for biomass estimation proposed by Sukardjo and Yamada (1992)		pp
55	Eco Eye Co Ltd	MoC signed on 17/07/2019 and 08/08/2019		PP
56	RINA Services	Contract signed between RINA and Eco Eye Co Ltd for the PoA validation services	28/03/2019	Others
57	-	Memorandum of understanding between Forest Department of the ministry of natural and environmental conservation and WIF for capacity building , research, mangrove restoration with community development and biodiversity/rescue endangered endemic orchids	Dated 11/08/2017	
58	Korean Electric Power Corporation	Certificate of employment of Lee, Kyung Jin	Dated 02/08/2019	
59	Eco Eye Co Ltd	Certificate of employment of Ha,Sang Sun, and Rhee,Soo Bok	Dated 02/08/2019	
60	WIF	Employment status of Mr. U Bo Ni	Dated 09/05/2018	
61	-	Passport copy of Mr. U Bo Ni, Dr. Arne, Mr. HeeBum, Mr. Sang Sun, Mr. Rhee Soo Bok and Ms. Lee KyunJin	-	PP
62	CDM Executive Board	CDM-MOC-FORM	Version 03 .0 of 23/05/2017	Others
63	Giri, C., Z. Zhu, L. L. Tieszen, A. Singh, S. Gillette, and J. A. Kelmelis. 2008.	"Mangrove Forest Distributions and Dynamics (1975–2005) of the Tsunami-affected Region of Asia." / j.1365-2699.2007.01806.x. https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1365-2699.2007.01806.x		
64	FAO	http://www.fao.org/newsroom/en/news/2008/1000776/index.html http://www.fao.org/3/a-i1757e.pdf	English language , last accessed on 05/12/2019	PP
65	Ministry of Environmental Conservation and Forestry	https://www.cbd.int/doc/world/mm/mm-nr-05-en.pdf	English language , last accessed on 05/12/2019	PP
66	M.P.Singh, B.S.Singh	Plant Biodiversity and Taxonomy	Published in 2002	Others

	and Soma Dey			
67	WIF	Win Maung (Director, retd (Forest Dept.): Mangrove nursery and planting techniques for some important mangrove species	dated 01/2012	PP
68	Coastal resource management project of the department of Environment and Natural resource	Mangrove management handbook		PP
69	WIF	LSC- List of participants	11/02/2019	PP
70	WIF	NEWs paper publications and invitations		PP
71	WIF	Minutes of meeting of LSC	11/02/2019	PP
72	IPCC	2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands		Others
73	The Pyidaungsu Hluttaw Law No. 29, 2018	The forest law, The 11 th Waxing day of Tawthalin, 1380 M.E.	20/09/2018	PP
74	The Government of the Republic of the Union of Myanmar, Ministry of Environmental Conservation and Forestry	Location map of Kanlyashe Protected Public Mangrove Forest (MAP No. 94 D/4)		PP
75	-	Location map of reserved forest, PPF and proposed PPF in Yangoan Region	-	PP
76	-	Land Use Land Cover classes of Yangoan Region as per FRA 2015	-	PP
77	WIF	Vegetation Index Map of Yangon Region , based on sentinel satellite imagery	For the year 2016 and 2019	PP
78	CDM Executive Board	CDM Project Standard for Programmes of activities	Version 02.0 of 29/11/2018	Others
79	CDM Executive Board	CDM Validation and Verification Standard for Programmes of activities	Version 02.0 of 29/11/2018	Others
80	CDM Executive Board	CDM Project cycle procedure for Programmes of activities	Version 02.0 of 29/11/2018	Others
81	WIF	Expenditure receipt	13/02/2019	Others
82	Maung Maung Hteik and Associates	Letter confirming the expenditure towards the land preparation	29/05/2020	PP
83	WIF	Sample ER spread sheets (Sample CPA DD ER estimates.xlsx)	-	PP

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. CLs from this validation

CL ID	01	Section no.	D.1.3	Date: 12/06/2019
Description of CL				
1. Section B of the PoA-DD states WIF as the CPA implementer, PP is requested to clarify, if the same CPA implementer will be involved in all the CPAs getting added to the PoA-DD. 2. Provide the Operation and Management structure. 3. Provide records of arrangements for training and capacity development for personnel.				
CME response				Date: 4/11/2019
<i>1. The CPA implementer for all CPAs within Myanmar will be WIF. 2. The O&M structure of the CME and the CPA implementer has been submitted, titled Management Structure_Ecoeye.pdf and Quality Assurance and Quality Control V.2.1 .pdf respectively. The O& M structure of the PoA has been added in the PoA DD. 3. Records of training and capacity building of personnel for project implementation has been provided in a document</i>				
Documentation provided by CME				
<i>1. O&M Structure of CME titled Management Structure_Ecoeye.pdf 2. O&M structure of CPA implementer titled Quality Assurance and Quality Control V.2.1 .pdf 3. Records of training and capacity development titled Personnel Training and Capacity Development by WIF.pdf</i>				
DOE assessment				Date: 05/12/2019
1. It is confirmed that WIF will be the CPA implementer for the CPAs included in the proposed PoA. 2. O&M structure of Eco eye provided. 3. Records of training and capacity of WIF staff involved in project implementation checked and accepted. CL 01 is closed.				

CL ID	02	Section no.	D.1.4	Date: 12/06/2019
Description of CL				

<p>1. Provide evidence that the incentive from the planned sale of CERs was seriously considered in the decision to proceed with the project activity.</p> <p>2. Provide the letter of authorization obtained from the host country in order to proceed with the requirements of registering the programme under a carbon mechanism</p> <p>STEP 1. Identification of alternative land use scenarios to the proposed A/R CDM project activity</p> <p>Sub-step 1a. Identify credible alternative land use scenarios to the proposed CDM project activity. Following are the two alternatives identified:</p> <p>1. Continuation of pre-programme land use i.e. degraded or severely degraded mangrove habitats.</p> <p>2. Restoration and reforestation of mangroves on the lands within the project boundary without being registered as a CDM project activity. As per the site visit observations, it is understood that the land where the project is proposed to be implemented is a land accretion within mangrove habitat and thus the alternatives proposed by the client needs to be revised accordingly.</p> <p>STEP 2. Barrier analysis</p> <p>Investment barriers, other than insufficient financial returns as analyzed in Step 3, inter alia:</p> <p>1. PP is requested to provide evidences to justify that similar plantation activities have been carried out only with grants or non-commercial financial terms, such as govt. funds.</p> <p>2. RINA team could not cross check the statement "Govt. of Myanmar has initiated participatory policies such as community forestry (1995) and private planting in 2006, only a small area has been planted. As of 2017, 3551 ha has been planted under community forestry and 1037 ha under private plantations have been established" under footnote 22.</p> <p>3. Note that footnote no 24 and 27 does not work.</p> <p>4. Could not cross check the statement " 58000 ha have been planted through JICA from 1980 to 2016" from footnote 26.</p> <p>Technological Barrier:</p> <p>1. PP is requested to provide evidence to justify "Lack of access to necessary materials, for example planting materials; - Lack of infrastructure for implementation of the technology.</p> <p>STEP 3. Investment analysis</p> <p>1. PP is requested to provide the simple cost analysis spread sheet and the supporting evidences for the input values considered in the cost analysis sheet.</p> <p>STEP 4. Common practice analysis:</p> <p>The table provided under common practice analysis, doesn't provide the entire list of plantation activities. It is seen that there are also other plantation activities funded by other organizations as shown in the reference doc https://www.gwp.org/globalassets/global/gwp-sas_images/gwp-sas-in-action/ldai/ldai_fd.pdf. Further PP to clarify, what are the essential distinctions between the proposed project and the other similar activities identified. Also, clarify why the similar forestation activities did not face barriers to which the proposed A/R CDM project activity is subject</p>	
CME response	Date: 4/11/2019

1. The notification sent to the UNFCCC for prior CDM consideration has been submitted. As the project start date is after 2nd August 2008, there is no need to provide any other document except the notifications sent to the UNFCCC. However, a board resolution of the CME showing incentive from the planned sale of CERs was seriously considered in the decision to proceed with the project activity has been submitted along with this document titled *Board Meeting Minutes Ecoeye.pdf*
2. The LoA was received by the CME on 24-05-2019. The LoA has been submitted for reference. An addendum to the LoA was received on 31-10-2019.
3. The lands selected for the PoA are either (i) degraded mangrove habitats and (ii) grasslands in land accretions present within degraded mangrove habitats. The credible alternative land uses have been revised in the PoA DD.
4. Evidences to show that similar plantation activities have been carried out with government funds/grants have been submitted with this document under a folder titled *Mangrove Plantation by Government and Grants*.
5. Page 16 of the document cited under footnote 22 contains this reference. This document has been submitted for reference.
6. The references cited in footnotes 24 and 27 have been submitted for reference titled *Status of Mangrove Ecosystem Conservation in Myanmar.pdf* and *Profile of MERN (Dec 2015).pdf* and
7. The reference provides information on plantation activities carried out by JICA and FREDIA, on slide 24 of the reference contained in footnote 26. The number has been corrected to 2800 ha and has been duly revised in the PoA DD.
8. The section on technological barriers has been excluded in the revised PoA DD.
9. Since this is the first large scale CDM project in Myanmar, the CME has done the simple cost analysis using assumptions provided by the CPA implementer (WIF), based on their past experience on mangrove restoration & plantation projects in Myanmar, even though the size is very low as compared to the current project. It is noteworthy that since CME has used Simple Cost Analysis, and there will be no returns, so any variation in the actual project cost which CME will incur during the project implementation will not affect the financial additionality.
10. The plantation activities mentioned in the document such as plantation by the forest department have been referred to in the PoA-DD, but not necessarily in the table.
The plantation activities mentioned in the document are all small scale planting activities funded by grants or government funds. The proposed PoA is a large scale planting activity, with long term monitoring and maintenance to ensure good survival. The project also includes a significant component of community development activities. The implementation on this scale faces the barriers described in the PoA DD. The success/survival rates of the small scale activities implemented have not been monitored. In addition, projects in Least Developed Countries can be assumed in general to face significant barriers to their implementation. At the same time, data availability in these countries is considerably limited which complicates the demonstration of additionality and therefore further increases transaction costs.

Documentation provided by CME

1. Board Resolution of the CME titled *Board Meeting Minutes Ecoeye.pdf*
2. LoA titled *LoA.pdf* and addendum to the LoA titled *Addendum to LoA.pdf*
3. Evidences to support that similar activities have been carried out with government funds/grants titled in folder titled *Mangrove Plantation by Government and Grants*
4. Document cited under footnote 24 and 27 titled *Profile of MERN (Dec 2015).pdf* and *Status of Mangrove Ecosystem Conservation in Myanmar.pdf*
5. Document cited in Footnote 22 titled *Government Strategy on Mangrove Forest Management and Conservation in Ayeyarwady Delta.pdf*
6. Simple Cost Analysis WIF.pdf

DOE assessment

Date: 05/12/2019

1. Board minutes provided by Eco Eye confirms that revenue from CERs are considered very essential to go ahead with the project, moreover the project does not have any other source of revenue.
2. LoA dated 24/05/2019 and amended LoA dated 31/10/2019 checked and accepted.
3. The credible alternative land uses have been revised in the PoA to the following:
(i) degraded mangrove habitats and (ii) grasslands in land accretions present within degraded mangrove habitats. The same was checked during the site visit and confirmed during the interactions with stakeholders. Revised PoA-DD is accepted.
4. checked the document "mangrove plantation by Govt and grants. Justification provided by CME is accepted.
- 5 & 6. The documents referred under footnote 22, 24 and 27 has been submitted to RINA. The same was checked and accepted by the team.
7. 58000 has been corrected with 2800ha. checked the document from JICA and FREDIA and accepted.
8. The barrier analysis is demonstrated by means of access to finance as a barrier. Thus technological barrier has been excluded from the PoA-DD and the same was accepted by RINA team.
9. Simple cost analysis spread sheet and the declaration wif has been provided to support the input values.
10. Common practice analysis has been revised in the PoA-DD. The same was checked against the evidences provided by PP and accepted by the team.

Based on the above justifications CL 2 is closed.

CL ID	03	Section no.	D.1.5	Date: 12/06/2019
Description of CL				
The start date of the PoA-DD is 05/12/2018, which is as per the prior consideration form submitted to UNFCCC. The same was also checked from the UNFCCC site and accepted. However, as per the PCP for PoA , para 4 of clause 4.1 , the CME may also notify the DNA of the host country in writing to seek the CDM status. PP is requested to provide copy of the same. Further , PP is requested to correct the start date format in dd/mm/yyyy .				
CME response				Date: 4/11/2019
<i>The CME sent an email notification to the DNA of the host country Myanmar on 05/12/2018.. The CME also sent an email notification to the UNFCCC detailing the same. Copies of the email sent as notification to the UNFCCC and the Myanmar DNA titled Email notification to UNFCCC.pdf and Email notification to DNA.pdf have been submitted.</i>				
<i>The date is in the prescribed format.</i>				
Documentation provided by CME				
1.Email notification to UNFCCC.pdf 2.Email notification to DNA.pdf				
DOE assessment				Date: 05/12/2019
Notification email sent to DNA , dated 05/12/2018 checked . Further the start date has been revised in the format dd/mm/yyyy. CL 3 is closed.				

CL ID	04	Section no.	D.1.8	Date:	12/06/2019
Description of CL					
<p>As discussed above, the CPAs of the PoA will be spread across Myanmar and there by the stakeholders, villagers, communities, municipality would be different for each CPA. Thus, the CME is requested to justify on the stakeholder consultation at PoA level..</p> <p>CME is requested to provide the translation of newspaper notice. Apart from the newspaper notice, what were the other modes of invitation. Also provide copy of the same.</p> <p>PP is requested to clarify if there are applicable host Party rules on local stakeholder consultation. The same is also not transparent in the PoA-DD.</p>					
CME response				Date: 4/11/2019	

As per the guidelines in the PS, ver 2.0, section 7.8.3, the CME has invited the local people impacted by this project along with relevant NGO & Forest Department officials. As per 7.8 of PS ver 2.0, the CME has the liberty to conduct the LSC either at PoA or CPA level and the CME has chosen to conduct the LSC at PoA level. As can be seen from the PoA boundary, the programme will be implemented in one host country i.e Myanmar. The members of the local community invited for the LSC meeting therefore represent the host country population.

There are no such applicable host party rules on LSC, the CME has followed the UNFCCC guidelines to conduct the LSC process.

A notice was put in a national paper and a few emails were sent as means of invitation.

Documentation provided by CME

1. Newspaper advertisement titled Newspaper Advertisement for LSC. Jpg and Newspaper Advertisement for LSC 2.jpg
2. Translation of newspaper notice titled Translation of LSC Invitation.pdf
3. Screenshot of email invitation titled Email LSC Invitation.jpg

DOE assessment

Date: 05/12/2019

The CME has decided to conduct the LSC at PoA level since the CPAs are going to be implemented only in Myanmar and more over, the socio economic and environmental impacts of the proposed project is similar in nature, no matter where the CPA is implemented. It is also checked that forest officials and NGOs were invited for the meeting. Hence, justification provided by PP is accepted.

There is no host country requirements to conduct LSC. The same has been made transparent in the PoA-DD.

Translated copies of news paper invitation and email checked.

Based on the above justifications, CL 4 is closed.

CL ID	05	Section no.	D.1.9	Date: 12/06/2019
Description of CL				
It is not clear if the CME has developed a document describing how it intends to monitor sustainable development co-benefits of the proposed CDM PoA, including the frequency of reporting of monitoring results and whether they intend to have monitoring results independently verified.				
CME response				Date: 4/11/2019
The CME has not developed any document on monitoring sustainable development co-benefits of the PoA. The PS, ver 2.0 gives the CME the choice to develop a document on the same or not. In addition, the monitoring of sustainable development is not mandatory.				
Documentation provided by CME				
N/A				
DOE assessment				Date: 05/12/2019
The PP doesn't intent to monitor the sustainable development co-benefits. Thus, a document describing how the coordinating/managing entity intends to monitor the sustainable development co-benefits of the proposed CDM PoA was not developed by the coordinating/managing entity. Since the same is not mandatory, RINA accepted the justification provided by PP. CL 5 is closed.				

CL ID	06	Section no.	D.2.1	Date: 12/06/2019
Description of CL				

1. The title of the generic CPA-DD is given as "Restoration of degraded mangroves as a climate change mitigation and adaptation strategy in Asia CPA –XX". However, from the discussions and interviews during the site visit, it was confirmed that the PoA involves only one host party and the CPAs will be implemented only in one country i.e. Myanmar. The same is not consistent with the title provided.
2. The purpose of the CPA is to reforest and restore degraded or severely degraded mangrove habitats. However, as per the site visit observations the proposed area of land where the CPAs are planned to implemented are land accretions within mangrove habitats. PP is requested to clarify the same with supporting evidences.
3. The species selected for planting is not transparent in section I.3.

CME response	Date: 4/11/2019
<p>1. The CME initially intended the PoA to span multiple countries. The CME subsequently took the decision to restrict this PoA to one host country, Myanmar. The LoA issued by the Myanmar DNA is for the same title, therefore the CME has retained the title of the PoA as such.</p> <p>2. The planting area of the CPA are land accretions present within degraded mangrove habitats. A land use map of the area shows that the habitat within which the planting is taking place is a degraded mangrove habitat. Planting activities will happen on the land accretions present within the habitat. The selected lands were identified to be most suitable for mangrove establishment using certain indicators. Indicators such as presence of grasses show that the next natural succession is mangroves. Only lands that meet this criteria are chosen. Care is taken to ensure there is no planting in unsuitable locations, such as mudflats. These lands were previously not forested and therefore the project activity has been revised to include afforestation and not reforestation. This has been elaborated on in the revised CPA DD. The coastline of Myanmar, including the project area, has been subject to erosion and degradation. In addition, there are clear evidences to support that the productivity of shrimp and fish in these habitats is declining. One of the main causes of productivity losses is habitat degradation.</p> <p>3. This has been clarified in the revised PoA DD</p>	

Documentation provided by CME	
<div>1.Land use map of the project area titled Land Use Map of 1st CPA.jpg</div> <div>2.Paper to show decline in productivity titled Community Led Coastal Management.pdf.</div> <div>3.Study to show ecological succession of mangroves titled Analysis of Mangrove Forest Succession.pdf</div> <div>4.Article on similar activities in Bangladesh titled Bangladesh Mangrove Afforestation.pdf</div> <div>5.Evidence to show coastal degradation and erosion based on a study by WWF titled Ayeyarwaddy Delta Status and Trends based on Morpho-Sedimentary Analysis.pdf</div>	
DOE assessment	Date: 05/12/2019
<div>1.The PoA is intended to be implemented only in Myanmar, since the intital documentation like prior consideration is communicated with the intial title , PP has remained the same title.</div> <div>2. The PoA has been revised. Along with the restoration/ reforestation, CME has also included the afforestation activities. The justification for the same has been provided by the CME and accepted by RINA team.</div> <div>3. The species selected for planting has made clear in the revised PoA-DD.</div> <div>Based on the above justifications CL 6 is closed.</div>	

CL ID	07	Section no.	D.2.2.1	Date: 12/06/2019
Description of CL				
<p>1. As per the site visit observations and the satellite imagery, it is understood that the proposed land for the CPA is not a degraded mangrove habitat and the land is formed due to siltation activities. PP is requested to clarify on how the condition of degraded mangrove habitat is justified.</p> <p>2. CME to justify, if the displacement of pre-project agricultural activities is expected to cause, directly or indirectly, any drainage of wetlands or peat lands.</p>				

CME response	Date: 4/11/2019
<p>1. The land selected for the first CPA is grassy land accretions within degraded mangrove habitats. Accretions are a natural phenomenon wherein new lands are created as a result of siltation and/or landscape changes due to storm/tsunami impacts. These accretions remain bare until the natural ecological succession of grasses. Studies show that the next succession will be mangroves. These lands are selected for project implementation as they are most suitable for mangrove plantation within this mangrove habitat. A mangrove ecosystem or habitat is defined as the interphase between terrestrial and marine communities, which receive a daily input of water from the ocean (tides) and freshwater, sediments, nutrients and silt deposits from upland rivers¹. Therefore, these land accretions are within a mangrove habitat. The coastline in this region has been shown to have undergone erosion and are degraded. Productivity of fish, shrimp and other aquatic organisms is declining. The erosion and decline in productivity show that the habitat is a degraded one. Land use maps of the region also show that the CPA area consists of degraded/severely mangrove habitats. Within this degraded habitat, planting activities occur in the most suitable location, i.e the land accretions or grasslands. Therefore the condition of degraded mangrove habitat is justified.</p> <p>2. There are no pre-project agricultural activities on the project lands and therefore no displacement of any agricultural activity, therefore this is not applicable. This has been made clear in the revised PoA-DD and has been further clarified in Section J.2.</p>	
Documentation provided by CME	
<p>1. Study to show ecological succession of mangroves titled <i>Analysis of Mangrove Forest Succession.pdf</i></p> <p>2. Land Use map of the CPA location titled <i>Land Use Map of 1st CPA.jpg</i></p>	
DOE assessment	Date: 05/12/2019
<p>1. It is checked that afforestation activities in the newly formed lands are within the degraded mangrove habitat. The same was also checked from land use maps and the interactions from the Director, Forest department of Yangoan. The revised justifications provided by the CME in the PoA-DD is accepted.</p> <p>2. PoA-DD updated. Site visit reveals that the project will not apply any activity that implies any drainage of wetlands directly or indirectly. There are no displacements of activities exist.</p> <p>Based on the above justification, CL 7 is closed.</p>	

CL ID	08	Section no.	D.2.2.4	Date: 12/06/2019
Description of CL				
It is not clear on how the CME has defined the project boundary of each of the corresponding CPAs. Provide translated versions of land ownership documents. Also provide the land use maps.				
CME response				Date: 4/11/2019
<p>The GIS file of the 1st CPA has been included in the CPA DD which clearly demarcates the project land area for the 1st CPA. Since the future land & areas for the additional CPAs are yet to be determined, it is not possible to provide the project boundary for all the CPAs at this time.</p> <p>GPS coordinates of each individual plot under each CPA will be demarcated. This serves as a unique identification for each plot under each CPA. CPA boundaries will be determined based on the shapefiles of the plots included under the CPA. The CME will maintain a database of these shapefiles as a unique identifier of each CPA.</p> <p>Therefore, during the inclusion of subsequent CPAs, the project boundaries and shapefiles of the respective CPAs will be submitted along with the CPA DDs.</p>				
Documentation provided by CME				

¹ <http://www.fao.org/3/a-a1427e.pdf>

1. Shapefiles for 1st CPA in folder titled Shapefiles of 1st CPA
2. Land Use map of 1st CPA titled Land Use Map of 1st CPA.jpg
3. Land Use and Extent 1st CPA.xlsx
4. Landuse_1988_KML
5. Landuse_1988.rar
6. Landuse_2017.rar
7. Landuse_2017_KML
8. Satellite Image Analysis 1st CPA Area.pdf

DOE assessment	Date: 05/12/2019
<p>For each CPAs included in the project , the CPA implementer will sign a contract with the CME. Also, the CPA implementer will have contracts with the local communities/Forest Department/Government ,which confirms the land area, including the name of the villages. Each CPA can be identified based on the geo-coordinates and the records for the same are maintained by CME to make sure there is no double counting. RINA team checked the shapefiles, kml files and land use maps of the proposed CPA to be included. The same has been made transparent in the general CPA-DD.</p> <p>CL 8 is closed.</p>	

Table 2. CARs from this validation

CAR ID	01	Section no.	D.1.2	Date: 12/06/2019
Description of CAR				
<p>CAR 1</p> <p>1. The proposed A/R CDM PoA plans to establish 35,000 ha of mangrove plantations on currently degraded costal/ intertidal areas in Myanmar. The CME is requested to provide evidences for the same.</p> <p>2. PP is requested to provide the management framework agreement between the CME and CPA implementers to support the explanation provided under section “the framework developed for the implementation of the proposed PoA.</p> <p>3. The title of the PoA-DD states Asia. However, the host party involved and the project boundary selected in the PoA-DD is for Myanmar and the CDM website for prior CDM consideration also states Bangladesh as one of the host party. PP is requested to clarify the same.</p> <p>4. The PoA-DD states that the project contributes to sustainable developmental goals 1,2,3,8 ,13 ,14 and 15. However, there is no explanation on how it contributes to the above mentioned goals. Further, the PP is requested justify on how the PoA contributes to the sustainable development of host party. And also provide the LoA from the host party involved in the PoA-DD.</p> <p>5. As per section A.3 of the PoA-DD ,the technology employed by the CPAs under the PoA are reforestation and restoration of degraded mangrove habitats. However, as per the site visit observations, the project also includes afforestation activities . PP is requested to justify on how the PoA-DD meets clause 7.2 of 33(e) (f) of CDMPs for PoA.</p> <p>6. The details of the PPs provided in section A.5 of the PoA-DD is inconsistent with the Appendix-1 of the PoA-DD.</p> <p>7. The CME is requested to provide Tri party agreement between CME, CPA implementer and other PPs. Mou between Forest depart and WIF on land ownership details and land tenure rights.</p>				
CME response				Date: 4/11/2019

1. The total area under the PoA has not been defined. This is reflected in the revised PoA DD
2. This has been provided as a supporting document titled Framework Agreement CME and CPA implementer.pdf
3. The CME initially intended to implement the proposed PoA in a number of countries, including Bangladesh. However, the CME later took the decision to implement the PoA in one host country, Myanmar. This is reflected in the PoA boundary and in the eligibility criteria for inclusion of a CPA into the PoA.
4. Details of how the programme addresses various SDGs has been elaborated under sections on Socio-economic impacts and environmental impact. However, this has been further elaborated and made more clear in version 2 of the PoA DD
5. The technology employed by the CPAs includes reforestation/restoration of degraded mangroves as well as afforestation/planting on grassy land accretions located within degraded mangrove habitats. The PoA DD has been revised to reflect the same.
6. This has been corrected in Version 2 of the PoA DD
7. There are no other PPs involved in this PoA except the CME & CPA implementer, and the first page of the agreement document between these two parties has been submitted. The rest of the agreement is confidential and cannot be shared. A letter of authorisation by the Forest Department authorising the CPA implementer, WIF, to implement the project in the 1st CPA has been provided. Documents detailing the extent of the Forest Department land has also been submitted, along with a translation in English.

Documentation provided by CME

1. Framework Agreement titled Framework Agreement CME and CPA implementer.pdf
2. LoA titled LoA.pdf
3. Addendum to LoA titled Addendum to LoA.pdf
4. Land Ownership documents in local language in a folder titled Land Ownership Documents Burmese
5. Translation of Land Ownership documents titled Land Ownership by FD 1.pdf and Land Ownership by FD 2.pdf
6. Translation of Authorisation Letter by the Forest Department to the CPA implementer titled Authorisation Letter from FD to WIF.pdf
7. Authorisation Letter by the Forest Department to the CPA implementer titled Authorisation Letter from FD to WIF.jpg
8. First page of agreement between the CME and CPA implementer titled CME and CPA implementer agreement.pdf

DOE assessment

Date: 05/12/2019

1. The revised PoA-dd removes the 35000 ha, since the land area to be used for the plantation is still not confirmed, which is accepted by the validation team.
2. Framework Agreement CME and CPA implementer checked and accepted.
3. The PoA is intended to be implemented only in Myanmar, since the initial documentation like prior consideration is communicated with the initial title, CME has remained the same title. The whole document of the PoA-dd is updated with only one host country i.e Myanmar.
4. The PoA-dd revised on contribution towards sustainable development. Further the addendum to LoA, date 31/10/2019 also confirms that the proposed PoA contributes to sustainable development.
5. The PoA-DD has been revised, which now also includes the afforestation activity.
6. The details of PP has been made consistent in section A.5 of the PoA-DD and Appendix-1 of the PoA-DD.
7. It is checked that there is no tripartite agreement. The agreement between CME and the CPA implementer is checked. RINA team further checked the letter from the Government of the Republic of the Union of Myanmar, Ministry of Environmental Conservation and Forestry confirming the land area for Mangrove plantation establishment in line with A/R CDM Project Activity to WIF (Authorisation Letter by the Forest Department to the CPA implementer) and also the Constitution of the protected public forest, notification no 59/2019 (land ownership documents).

Based on the above justifications CAR 1 is closed.

CAR ID	02	Section no.	D.1.6	Date: 12/06/2016
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Description of CAR	
<p>1. The analysis of environmental impacts are considered at the PoA level. However, RINA team is of the opinion that the proposed CPA's are spread across Myanmar and there would be lot of difference in topography, biodiversity and ecosystem. CME is requested to justify on how the assessment of environmental impacts at PoA level is justifiable. Further as per clause 7.6 of PS -PoA, for A/R CDM PoA, the CME shall carry out the analysis, including transboundary impacts (impacts on biodiversity and natural ecosystems and impacts outside the programme boundary), and provide a summary of the analysis and references to all related documentation.</p> <p>2. PP is requested to provide EIA rules , which states under which condition the project requires EIA assessment. Also, provide copy of the Republic of the Union of Myanmar regulations, which states that an environmental impact assessment (EIA) is not required for restoration of mangrove habitats and planting of mangroves</p>	
CME response	Date: 4/11/2019
<p>1. The PS version 2.0, para 44 gives the CME the liberty to conduct the EIA at either the PoA or the CPA level. The project activities include reforestation/afforestation of mangroves within degraded mangrove habitats. As per the EIS guidelines of the Host Country, this kind of project activity does not require an EIA. In addition, the benefits of mangroves plantation/restoration have been well studied and established both at a local and global level, and no negative impacts have been seen. The project measures are similar or even the same across the CPAs in terms of land types, species selection, technologies used for nursery management, planting and management. The environmental impacts and benefits are also expected to be similar. Therefore the CME has conducted the EIA at PoA level.</p> <p>2. The EIA rules in English and Burmese have been submitted for reference titled Myanmar EIA Procedure English.pdf and Myanmar EIA Procedure MY.pdf.</p>	
Documentation provided by CME	
<p>1. EIA rules (Myanmar Local Language) titled Myanmar EIA Procedure MY.pdf</p> <p>2. EIA rules (English) titled Myanmar EIA Procedure English.pdf</p>	
DOE assessment	Date: 05/12/2019
<p>It is checked that as per the EIA rules, such planation projects doesn't require an EIA. Thus, the environmental impacts has been considered only at PoA level. It is further noted that there is no negative impacts from such projects and the benefits from the projects would be of similar nature, where ever the project is implemented. The explanation provided in the PoA-dd is accepted. The same was also cross checked with local stakeholders and there is no negative feed back.</p> <p>CAR 2 is closed.</p>	

CAR ID	03	Section no.	D.1.7	Date: 12/06/2019
Description of CAR				
<p>As discussed above, the CPAs are spread across Myanmar and the stakeholders involved in each CPA is different from others. PP is requested to justify on how the socio economic impact assessment at PoA level is justifiable. As per para 48 of PS-POA, for a proposed A/R CDM PoA, the coordinating/managing entity shall carry out an analysis of its major socio-economic impacts, including impacts outside the programme or project boundary. The CME is requested to carry out the analysis and provide a summary of the analysis and references to all related documentation</p>				
CME response				Date: 4/11/2019
<p>The proposed PoA is spread across degraded mangrove habitats along the Myanmar coastline and works closely with coastal communities in Myanmar. The communities have similar geo- political conditions, means of livelihoods, work culture and others and can be considered similar in terms of their socio-economic conditions. The project interventions addressing livelihoods is similar or the same across all CPAs and the therefore the socio-economic benefits/impacts are also expected to be the same. There are no negative impacts foreseen as a result of this PoA. Therefore, the socio impact assessment has been conducted at the PoA level, which reflects the conditions of all CPAs in the proposed CDM PoA.</p> <p>In the revised PoA DD, further information on this has been provided. The DNA of the Host Country, Myanmar, has not raised any objections to the PoA level of assessment while issuing the LoA.</p>				
Documentation provided by CME				

N/A	
DOE assessment	Date: 05/12/2019
<p>The CME has decided to conduct the LSC at PoA level since the CPAs are going to be implemented only in Myanmar and more over, the socio economic and environmental impacts of the proposed project is similar in nature , no matter where the CPA is implemented. It is also checked that forest officials and NGOs were invited for the meeting. Hence , justification provided by PP is accepted. The Host Country approval does not have any criteria for the PoA and confirms the no negative socio economic impacts . No legal requirements by the governing local country calls for Socio Economic Assessment. The DOE confirms the same through approved LOA, site visit and socioeconomic Impact assessment at PoA level.</p> <p>CAR 3 is closed.</p>	

CAR ID	04	Section no.	D.1.10	Date: 12/06/2019
Description of CAR				
<p>The coordinating/managing entity is requested to provide a letter of approval from the DNA of each Party involved in the proposed CDM PoA that:</p> <p>(a) Confirms that the Party is a Party to the Kyoto Protocol;</p> <p>(b) Confirms that the participation in the proposed CDM PoA is voluntary;</p> <p>(c) Refers to the precise title of the proposed CDM PoA</p>				
CME response				Date: 4/11/2019
<p><i>Only one host country is involved in this PoA. The CME has provided the LoA received from the Myanmar DNA and an addendum to the LoA that provides relevant information as requested in this CAR.</i></p>				
Documentation provided by CME				
<p>1.LoA from the host country titled LoA.pdf</p> <p>2.Addendum to LoA titled Addendum to LoA.pdf</p>				
DOE assessment				Date: 05/12/2019
<p>It is checked that only one host country Myanmar is involved in the poposed PoA. The addendumLoA from the DNA oF Myanmar , dated 31/10/2019 confirms the following:</p> <p>a) Confirms that the Party is a Party to the Kyoto Protocol;</p> <p>(b) Confirms that the participation in the proposed CDM PoA is voluntary;</p> <p>(c) Refers to the precise title of the proposed CDM PoA</p> <p>CAR 4 is closed.</p>				

CAR ID	05	Section no.	D.1.11	Date: 12/06/2019
Description of CAR				
<p>1.The CME is requested to provide authorization letter or approval letter authorizing each project participant by at least one Party involved in the proposed CDM PoA to participate in the PoA.</p> <p>2. The CME is requested to provide authorization letter or approval letter authorizing CME by each host Party of the proposed CDM PoA to coordinate the PoA.</p>				
CME response				Date: 4/11/2019
<p>1.An authorization letter or approval letter authorizing each project participant by the Myanmar DNA to participate in the PoA has been submitted.</p> <p>2.Only one host country is involved in this PoA, and the CME has provided the LoA received from the Myanmar DNA.</p>				
Documentation provided by CME				
<p>1.LoA from the host country titled LoA.pdf</p> <p>2.Addendum to LoA titled Addendum to LoA.pdf</p>				
DOE assessment				Date: 05/12/2019
<p>The LoA from the DNA of Myanmar, dated 31/10/2019 authorizes the PP and the CME to participate in the proposed CDM PoA.</p> <p>CAR 5 is closed.</p>				

CAR ID	06	Section no.	D.1.12	Date: 12/06/2019
Description of CAR				
CME is requested to provide the MoC statement. Further, CME is requested to provide evidences to validate the corporate identity of all project participants, the coordinating/managing entity and focal points included in the Modalities of Communication (MoC) statement, as well as the personal identities,				
CME response				Date: 4/11/2019
<i>The MoC statement as well as requested evidences have been provided with this document.</i>				
Documentation provided by CME				
<p>1. MoC statement titled MoC_Myanmar Mangrove PoA_Ecoeye_KEPCO_WIF.pdf</p> <p>Evidences to validate the corporate identity of all project participants, the coordinating/managing entity and focal points included in the Modalities of Communication (MoC) statement, as well as the personal identities, titled</p> <p>2. Certificate of Employment_Ahn Hee Bum.pdf 3. Certificate of Employment_Lee Kyung Jin.jpg 4. Employment status Ecoeye.pdf 5. Employment Status U Bo Ni.jpg 6. Proof of Dr Arne's position at WIF titled 11_Aug_2017 MOU between WIF and Forest Department (FD).pdf and 11_August_2017 ADDENDUM TO MEMORANDUM OF UNDERSTANDING.pdf 7. Passport_Lee Kyung Jin.jpg 8. Passport Heebum Ahn.pdf 9. Passport Dr. Arne.pdf 10. Passport Soobok Rhee.pdf 11. Passport Sangsun Ha.jpg 12. Passport Bo Ni.jpg</p>				
DOE assessment				Date: 05/12/2019
<p>The MoC is signed on 17/07/2019 and 08/08/2019 was provided by EcoEye CO LTD with whom RINA has a contractual relationship confirmed by the request of services signed on 12/06/2019. Section 2 of the MOC identifies joint focal point i.e. Korea Electric Power Corporation and Ecoeye Co Ltd. The corporate identity of all the focal points (joint) and the PP(s) included in the MoC statement, as well the personal identities, the signatures and the related authorized signatures, and the employment status have been cross-checked through written confirmation from the project participant that submits the MoC statement that all corporate and personal details, including specimen signatures, are valid and accurate. Copy of the passports and interviews with the PP confirmed the same.</p> <p>RINA confirms that the MoC statement provided by the CME is based on the currently valid form "Modalities of Communication Statement" (F-CDM-MOC), the information required by the form including its Annex 1 is correctly completed, and the PP(s) authorized signatories signing the MoC correspond to the PP(s) authorized signatories included in CDM-MOC-FORM, Annex 1.</p> <p>CAR 6 is closed.</p>				

CAR ID	07	Section no.	D.2.2.7	Date: 12/06/2019
Description of CAR				

1. The monitoring plan is not transparent on the responsible person/entity who/that will undertake the measurements;
2. The calibration procedures to be applied and the responsible person/entity who/that will perform the calibration.
3. Specifications of the calibration frequency for the measuring equipment.
4. The operational and management structure to be put in place to implement the monitoring plan;
5. Provisions to ensure that data monitored and required for verification and issuance are kept and archived for at least two years after the end of the final crediting period or the last issuance of CERs, whichever occurs later;
6. Definition of responsibilities and institutional arrangements for data collection and archiving.

CME response**Date:** 4/11/2019

a. The monitoring plan is not transparent on the responsible person/entity who/that will undertake the measurements;

The following personnel will be involved with measurements:

For every 1000 Hectares, the following staff are present:

- (i) 1 Field manager : The field manager also acts as the social development manager with plans to have a socio economic expert tagged with each field manager*
- (ii) 5 Technical Assistants*
- (iii) 10 Field Assistants*

Each Sample plot is monitored. The staff measure the girth and height of each tree annually. This is documented in a log sheet. This template has been attached for reference, titled Sample Log Sheet.xlsx

- 2. The instruments used for field measurements do not require calibration and hence this is NA.*
- 3. The instruments used for field measurements do not require calibration and hence this is NA*

b. The operational and management structure to be put in place to implement the monitoring plan

For every 1000 Hectares the following staff will be employed:

- (i) 1 Field manager The field manager also acts as the social development manager with plans to have a socio economic expert tagged with each field manager*
- (ii) 5 Technical Assistants*
- (iii) 10 Field Assistants*

All the field managers report to the GM Operations in the Yangon office.

c. Provisions to ensure that data monitored and required for verification and issuance are kept and archived for at least two years after the end of the final crediting period or the last issuance of CERs, whichever occurs later;

All data collected will be archived for at least 7 years after the end of the final crediting period

Documentation provided by CME

- 1. Monitoring Log Sheet titled Sample Log Sheet.xlsx*
- 2. Quality Assurance and Quality Control V.2.1 .pdf*

DOE assessment**Date:** 05/12/2019

Validation team based on the review of PoA-DD and discussion with CME and CPA implementer during the site visit confirms that clear and transparent description of the operational and management arrangements have been established by the CME for the PoA. All the details of individual CPAs including the documents shall be controlled by CPA implementer. Furthermore the records of individual CPAs shall also be maintained by the CME. Individual CPA implementer shall sign an agreement with the CME and agrees to comply with all terms and conditions of the PoA including those related to the monitoring and data control. The same has been confirmed from the review of template agreement between the CPA implementers and the CME where the eligibility criteria for the inclusion of the CPA in PoA are mentioned /35/ /30/. Hence any CPA which would be included in the PoA shall follow the operation and management plan of the PoA as stated in the PoA-DD and signed agreement.

The CME has a well-defined project management structure for monitoring of the CPA which can be verified from the PoA-DD.

It is also confirmed that the measurement instruments like Vernier caliper/measurement tape and poles used in measuring the height doesn't need any calibration.

The monitoring plan describes the field measurement procedures, collection of data, roles and responsibilities of staff and archiving data, QA and QC procedures, data storage etc. All the monitoring data is stored / will be recorded and kept for a period of crediting period + 2 years or the last issuance of CERs + 2 years whichever occurs later by CME.

Based on the above justifications, CAR 7 is closed.

CAR ID	08	Section no.	D.2.4	Date: 12/06/2019
Description of CAR				

1.	The following eligibility criteria are not made transparent as per the clause 124 of CDM Project Standard for Programme of Activities.
	<ul style="list-style-type: none"> •Conditions to confirm that CPAs are neither registered as CDM project activities, included in another registered PoAs, nor the project activities that have been deregistered; •Specification of the technology/measure, such as the level and type of service, as well as performance specification based on, inter alia, testing/certification; •Conditions to ensure the compliance with other requirements of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents; •Target group (e.g. domestic/commercial/industrial, rural/urban, grid-connected/offgrid), and where applicable, distribution mechanisms (e.g. direct installation);
2.	<p>The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA</p> <ul style="list-style-type: none"> •It is not clear, if this can be also checked with the contract in place between the CME, CPA implementer.
3.	<p>Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations</p> <ul style="list-style-type: none"> •Not clear on the measures ensured by the CME to make sure there is no double counting of the CPAs and the ways to cross check the same. Also, clarify, on how the contract signed between CPA implementer and local communities ensure there is no double counting.
4.	<p>Conditions to check the start date of the CPA through documentary evidence</p> <ul style="list-style-type: none"> • It is not clear if the start of the CPA considered as the date of first signing contract between CME & PP for implementation of project activity. PP to clarify on how the same is as per the Glossary of CDM terms.
CME response	
Date: 4/11/2019	
<p>1. This has been accounted for in the revised PoA DD where relevant to the PoA</p> <p>2. This has been clarified in the revised PoA DD</p> <p>3. This has been clarified in the revised PoA DD</p> <p>4. The start date of the project has been taken as the date land preparation activities in the CPA site has begun. This is in line with the Glossary of CDM terms.</p>	
Documentation provided by CME	
NA	
DOE assessment	
Date: 05/12/2019	

1. The above mentioned eligibility criteria has been made transparent in the updated PoA-DD. The justification provided for the same was checked and accepted by the validation team.
2. During the inclusion of the CPA, the DOE will check the shape files/kml files of each land parcel included in the CPA. Further to this the DOE will also check the contracts between the CPA implementer and local communities/Forest Department/Government, which confirms the area of plantation.
3. It is confirmed that for each CPAs included in the project, the CPA implementer will sign a contract with the CME. Also, the CPA implementer will have contracts with the local communities/Forest Department/Government, which confirms the land area, including the name of the villages. Each CPA can be identified based on the geo-coordinates and the records for the same are maintained by CME to make sure there is no double counting.
4. The land preparation dates will be considered as the start date for the CPA. Further the documents must be in line with the Glossary of CDM terms. At the time of inclusion request of any proposed CPA, CME shall submit the mentioned documents to the DOE who will be performing validation for the consistency and integrity check. This eligibility criteria will ensure CPA start date should not be before start date of the PoA.

Based on the above justifications, CAR 8 is closed.

Table 3. FARs from this validation

FAR ID	01	Section no.	D.2.3.4	Date:	05/12/2019
Description of FAR					
<p>CME has confirmed to use the dSOC at each CPA level based on the below options:</p> <ul style="list-style-type: none">•Default value from methodology•SOC estimated from soil samples collected from the CPA area or anyother transparent and verifiable information. <p>However, in the generic CPA , CME has opted for for a default value of 0.50 tc/ha/year, which is taken as per as per paragraph 17 of the methodology AR-AM0014, version 03. Thus, options provided by the CME for SOC needs to be checked and assessed by the DOE at each CPA inclusion and justify the same is conservative and acceptable .</p>					
CME response				Date: DD/MM/YYYY	
Documentation provided by CME					
DOE assessment					
				Date: DD/MM/YYYY	

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none">•Ensure consistency with version 02.0 of the “CDM validation and verification standard for programmes of activities” (CDM-EB93-A08-STAN);•Make editorial improvements.
02.0	29 December 2017	Revision to align with the requirements of the “CDM validation and verification standard for programme of activities” (version 01.0).
01.0	4 May 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Registration Keywords: programme of activities, validation report		