JCM Validation Report Form

A. Summary of validation

A.1. General Information

Title of the project	Introduction of PV-diesel Hybrid System at Fastening Manufacturing Plant
Reference number	BD004
Third-party entity (TPE)	TPE-BD-002 Japan Quality Assurance Organization (JQA)
Project participant contracting the TPE	YKK Corporation
Date of completion of this report	20/03/2018

A.2 Conclusion of validation

Overall validation opinion	☒ Positive ☐ Negative

A.3. Overview of final validation conclusion

Only when all of the checkboxes are checked, overall validation opinion is positive.

Item	Validation requirements	No CAR or CL remaining
Project design document form	The TPE determines whether the PDD was completed using the latest version of the PDD forms appropriate to the type of project and drafted in line with the Guidelines for Developing the Joint Crediting Mechanism (JCM) Project Design Document, Monitoring Plan and Monitoring Report.	☒
Project description	The description of the proposed JCM project in the PDD is accurate, complete, and provides comprehension of the proposed JCM project.	☒
Application of approved JCM methodology (ies)	The project is eligible for applying applied methodology and that the applied version is valid at the time of submission of the proposed JCM project for validation.	☒
Emission sources and calculation of emission reductions	All relevant GHG emission sources covered in the methodology are addressed for the purpose of calculating project emissions and reference emissions for the proposed JCM project.	☒
	The values for project specific parameters to be fixed *ex ante* listed in the Monitoring Plan Sheet are appropriate, if applicable.	☒
Environmental impact assessment	The project participants conducted an environmental impact assessment, if required by the People's Republic of Bangladesh, in line with Bangladeshi procedures.	☒
Local stakeholder	The project participants have completed a local stakeholder consultation process and that due steps were taken to engage	☒

Item	Validation requirements	No CAR or CL remaining
consultation	stakeholders and solicit comments for the proposed project.	
Monitoring	The description of the Monitoring Plan (Monitoring Plan Sheet and Monitoring Structure Sheet) is based on the approved methodology and/or Guidelines for Developing the Joint Crediting Mechanism (JCM) Project Design Document, Monitoring Plan, and Monitoring Report. The monitoring points for measurement are appropriate, as well as whether the types of equipment to be installed are appropriate if necessary.	☒
Public inputs	All inputs on the PDD of the proposed JCM project submitted in line with the Project Cycle Procedure are taken into due account by the project participants.	☒
Modalities of communications	The corporate identity of all project participants and focal points, as well as the personal identities, including specimen signatures and employment status, of their authorized signatories are included in the MoC.	☒
	The MoC has been correctly completed and duly authorized.	☒
Avoidance of double registration	The proposed JCM project is not registered under other international climate mitigation mechanisms.	☒
Start of operation	The start of the operating date of the proposed JCM project does not predate January 1, 2013.	☒

Authorised signatory:	Mr. ☒ Ms. ☐
Last name: Asada	First name: Sumio
Title: Senior Executive	
Specimen signature: [redacted]	Date: 20/03/2018

B. Validation team and other experts

	Name	Company	Function*	Scheme competence*	Technical competence*	On-site visit
Mr. ☒ Ms. ☐	Koichiro Tanabe	JQA	Team leader	☒	Authorized	☐
Mr. ☐ Ms. ☒	Sachiko Hashizume	JQA	Team member	☒	Authorized	☐
Mr. ☒ Ms. ☐	Tadashi Yoshida	External Individual	Internal reviewer	☒	Authorized	☐

Please specify the following for each item.

* *Function: Indicate the role of the personnel in the validation activity such as team leader, team member, technical expert, or internal reviewer.*

* *Scheme competence: Check the boxes if the personnel have sufficient knowledge on the JCM.*

* *Technical competence: Indicate if the personnel have sufficient technical competence related to the project under validation.*

C. Means of validation, findings, and conclusion based on reporting requirements

C.1. Project design document form

<Means of validation>

Through a review of the draft PDD, it was checked and confirmed that the PDD was completed using the latest version of the PDD form (JCM_BD_F_PDD_ver03.0) appropriate to the type of project and drafted in line with JCM Guidelines for Developing PDD and MR (JCM_BD_GL_PDD_MR_ver03.0)

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issue was raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team concluded that the PDD was completed using the valid form in line with the JCM Guidelines for Developing PDD and MR.

C.2. Project description

<Means of validation>

The title of the proposed JCM project is “Introduction of PV-diesel Hybrid System at

Fastening Manufacturing Plant" (herein after referred to as the proposed JCM project).

The proposed JCM project aims to reduce CO_2 emissions from electricity consumption in the People's Republic of Bangladesh (herein after referred to as Bangladesh) by installing a hybrid solar-diesel power generation system to the Fastening Manufacturing Plant of YKK Bangladesh Pte Ltd.(herein after referred to as YKK Bangladesh) in the Dhaka Export Processing Zone (DEPZ), Ashulia, Dhaka, Bangladesh. The solar power generated by the project hybrid system replaces the electricity generated by the existing captive diesel power generators.

The hybrid solar-diesel power generation system consists of the solar photovoltaic (PV) system (Capacity of approximately 340kW) and Fuel Save Controller. The system enables the share of solar power generation to a capacity of a diesel generator to be raised up to 60%, which is generally technically limited to approximately 20%. This limitation is caused by power-variation of photovoltaic module arrays. Therefore, installation of the Fuel Save Controller will enable greater reduction of fuel consumption by diesel generators and GHG emissions.

The project participant from Bangladesh is YKK Bangladesh and the project participants from Japan is YKK Corporation (herein after referred to as YKK).

The proposed JCM project is expected to achieve the amount of 226 tCO_2e emission reductions per annum. The estimated emission reductions of the period between 2016 and 2020 are calculated to be 1,028 tCO_2e in the PDD.

The starting date of project operation is defined as 01/06/2016 and the expected operational lifetime of the proposed JCM project is defined as 9 years.

With respect to the staring date of project operation, an issue was raised and resolved as mentioned in Section C.10 of this validation report.

The proposed JCM Project was partially supported by the Ministry of Environment, Japan through the financing programme for JCM model projects, which provided financial support up to 50% of initial investment for the projects in order to acquire JCM credits. KYOCERA Co, manufacturer of the hybrid solar-diesel power generation system, has conducted OJT training and provided a manual on operation, maintenance and safety measures of the facilities for the garment fastener manufacturing plant.

The validation team conducted desk review and interviews to confirm the accuracy and completeness of the project description. The documents reviewed during the desk review are listed in Section E.2 of this report. The interviewees including the project participants and other stakeholders are listed in Section E.1. The validation team did not visit the project site, for local security reasons and according to the validation contract.

Based on the findings through the process taken, issues were raised and resolved as described below.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

(Issue raised as CL01)

It is requested to identify the existing captive diesel power generators, which are replaced in the Fastening Manufacturing Plant. And, for reference, it is requested to explain whether the plant has used any grid electricity and/or electricity generated by any fuel oil excluding diesel oil.

(Summary of the response on CL01)

Five diesel generators are synchronously transmitting power to the trunk. Photovoltaic power is transmitted to the power trunk of production equipment while monitoring five diesel generators. Regarding lighting and air conditioning, it uses a grid power and is separate from the diesel generator system that is supplying to production equipment.

(Assessment result of the responses on CL01)

It was clarified that the project solar PV electricity replaces the electricity generated by the existing five diesel generators transmitted to the power trunk of production equipment of the Fastening Manufacturing Plant. It was also explained that the project solar PV electricity does not replace any grid electricity and/or electricity generated by any fuel oil excluding diesel oil. Therefore, this issue was closed.

(Issue raised as CL02)

It is requested to describe the latitude and longitude by using a format searchable by google map.

(Summary of the response on CL02)

N 23.949247

E 90.280591

(Assessment result of the responses on CL02)

It was confirmed that the latitude and longitude is described by using a format searchable by google map in the revised PDD. Therefore, this issue was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team concluded that the accuracy and completeness of the project description were valid.

C.3. Application of approved methodology(ies)

<Means of validation>

The project applies the approved methodology BD_AM002, "Installation of Solar PV System", version.1.0. This methodology was approved by JC on 16 October 2017. It is confirmed that this methodology is applicable to the proposed JCM project and the applied version of 01.0 is valid at the time of submission of the project for validation.

The fulfilment of each eligibility criterion defined in the methodology is confirmed by checking the documentation referred to in the PDD and by reviewing comparable information.

Criterion 1: The project newly installs solar PV system(s).

Through reviewing the following documents, it was confirmed that the proposed JCM project newly installs a solar system to introduce a hybrid solar-diesel system to the Fastening Manufacturing Plant of YKK Bangladesh.

- Project information on Global Environment Center (GEC) website (http://gec.jp/jcm/projects/15pro_ban_02/)
- Operation and Maintenance Manual of 334.6kW Photovoltaic-Diesel Hybrid System for YKK BANGLADESH PTE.LTD. issued by KYOCERA Asia Pacific Pte.Ltd., KYOCERA CORPORATION, May 2016

Criterion 2: The PV modules have obtained a certification of design qualifications (IEC61215, IEC 61646 or IEC 62108) and safety qualification (IEC 61730-1 and IEC61730-2).

Through reviewing the following documents, it was confirmed that the PV modules have obtained a certification of design qualifications IEC61215 and safety qualification IEC 61730-1 and IEC61730-2.

- Specification of Photovoltaic module, type : KK265P-3CF3CG
- Operation and Maintenance Manual of 334.6kW Photovoltaic-Diesel Hybrid System for YKK BANGLADESH PTE.LTD. issued by KYOCERA Asia Pacific Pte.Ltd., KYOCERA CORPORATION, May 2016

Criterion 3: The equipment to monitor output power of the solar PV system(s) and

irradiance is installed at the project site.

Through reviewing the following documents provided by PP, it was confirmed that the proposed JCM project installed the equipment to monitor output power of the solar PV system and irradiance to introduce a hybrid solar-diesel system to the Fastening Manufacturing Plant of YKK Bangladesh Pte Ltd.

- Operation and Maintenance Manual of 334.6kW Photovoltaic-Diesel Hybrid System for YKK BANGLADESH PTE.LTD. issued by KYOCERA Asia Pacific Pte.Ltd., KYOCERA CORPORATION, May 2016
- *Brochure of EKO Pyranometer
- *Brochure of SMA Cluster Controller

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

(Issue raised as CL04)

PP provided a set of certifications of design qualifications (IEC 61215) and safety qualification (IEC 61730-1 and IEC 61730-2) for particular PV modules of Kyocera Corporation issued by Japan Electrical Safety and Environment Technology Laboratories. It is requested to clarify the model number of the installed PV modules.

(Summary of the response on CL04)

The specifications of the installed PV module (KK 265 P - 3 CF 3 CG) is provided.

(Assessment result of the responses on CL04)

Through reviewing the specification of photovoltaic module type: KK265P-3CF3CG, it was confirmed that the project PV module have obtained a certification of design qualifications (IEC61215) and safety qualification (IEC 61730-1 and IEC61730-2). Therefore, this issue was closed.

(Issue raised as CL05)

It is requested to correct the quotation of eligibility criterion 1 and 3 under section B.2. of PDD.

(Summary of the response on CL05)

PDD is revised.

(Assessment result of the responses on CL05)

It was confirmed that the PDD is revised appropriately. Therefore, this issue was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that the project meets each eligibility criterion of BD_AM002_ver01.0 which is the latest version of the methodology at the time of the validation. The issues raised by the team were fully clarified. Therefore the team concluded that the project is eligible for applying selected methodology and that the applied version is valid at the time of submission of the proposed JCM project for validation.

C.4. Emission sources and calculation of emission reductions

<Means of validation>

The sources of reference emissions is consumption of captive electricity generated by the existing captive diesel power generators. In accordance with the applied methodology, project emissions are not assumed in the proposed JCM project as electricity consumption by any PV system is negligible.

The validation team conducted the validation for the proposed JCM project through reviewing the relevant supporting documents, and without an on-site visit for security reasons. As a result, it is confirmed that all emission sources covered in the applied methodology are included. The Monitoring Plan Sheet (MPS) has been prepared by using JCM_BD_AM002_ver01.0.xlsx. The validation team confirmed that it is not altered, and its required fields are appropriately filled in.

As for a project specific parameter to be fixed ex ante, namely, $EF_{RE,i}$ (Reference CO_2 emission factor for the project solar PV system i), the applied methodology sets the default value with three options. For the proposed JCM project, project participants selected $EF_{RE,cap,diesel}$, 0.533 tCO_2/MWh. The validation team assessed the applied value by reviewing supporting documents including specification of the captive diesel power generator using only diesel oil as fuel at the project site. In the course of such assessment an issue was raised as CL01 of Section C.2 and resolved as mentioned in the section C.2 above.

As for the parameter to be monitored ex post, project participants provide the estimated values of $EG_{i,p}$ (Quantity of the electricity generated by the project solar PV system I during the period p) to complete the ex-ante estimation of CO_2 emission reductions to be achieved by the proposed JCM project in Table 3 of Monitoring plan sheet (Input sheet). The annual electricity generation of the project solar PV system is estimated ex-ante as 425.40 MWh according to the simulation by KYOCERA.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

Refer to CL01 in Section C.2 above.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team reached the conclusion that the selected emission sources and GHG types were justified for the JCM project. The validation team assessed the estimated values for project-specific parameters both to be fixed ex and to be monitored ex post in the MPS including intermediate processes to derive the values. The issues raised by the team were fully clarified, which resulted in a revision of the PDD and the MPS. As a result, those estimated values fixed ex-ante, and ex-ante estimation of CO_2 emission reductions were considered reasonable in the context of the proposed JCM project.

C.5. Environmental impact assessment

<Means of validation>

It is confirmed through the review of the following documents that no environmental impact assessment is required for the project.

- The Environment Conservation Rules, 1997

Regarding the confirmation of the requirement of Bangladesh legislation on EIA, an issue was raised and resolved as mentioned in the section below.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

(Issue raised as CL06)

It is requested to clarify whether any environmental impact assessment is required by the People's Republic of Bangladesh, in line with the Bangladeshi procedures.

(Summary of the response on CL06)

By "The Environment Conservation Rules, 1997", EIA is not required.

(Assessment result of the responses on CL06)

It was clarified that no EIA is required to the proposed JCM project. Therefore, this issue was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team concluded that the project design of the proposed JCM project was in accordance with the regulation in Bangladesh.

C.6. Local stakeholder consultation

<Means of validation>

The project participants identified the main stakeholders as employees of YKK Bangladesh Pte Ltd. A stakeholder meeting has been conducted to invite comments from the stakeholders as below.

Date	17th October 2016
[Venue] (Video conference)	Bangladesh: Meeting room of YKK Bangladesh PTE, Dhaka Japan: YKK Corporation, Toyama
Participated organization in the consultation	Employees of YKK Bangladesh Pte Ltd

The comments received at the meeting were fully taken into account and the results were reflected in the PDD. It was confirmed through the document review and interview with the project participants that the above-mentioned process and due steps taken for the local stakeholder consultation are appropriate.

Regarding the consideration of a comment received, an issue was raised and resolved as mentioned below section.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

(Issue raised as CL07)

It is requested to provide the participants list of LSC.

(Summary of the response on CL07)

The participants list is provided with the LSC report and the picture.

(Assessment result of the responses on CL07)

The participants list of the LSC with LSC report and the picture were provided. Therefore, this issue was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team concluded that the local stakeholder consultation of the proposed

JCM project was adequate.

C.7. Monitoring

<Means of validation>

Through reviewing the Monitoring Plan Sheet and Monitoring Structure Sheet, it was confirmed that they are described based on the applied methodology BD-AM002 ver 01.0.

Regarding the monitoring points, an issue was raised and resolved as section below.

With respect to the monitoring methods and procedures, the means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, issues were raised and resolved as mentioned in below section.

With respect to the monitoring structure, it was confirmed through the document review and interview with YKK that the monitoring plan is feasible and the means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient for ex post reporting and verification.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

(Issue raised as CL08)

It is requested to clarify the monitoring system of the electricity generated by PV.

(Summary of the response on CL08)

The electronic multimeter SQLC - 110L is a power meter that measures electric power generated by the PV system. It measures the instantaneous generated power kW and displays as integrated generated power kWh. The integrated generated power is read and recorded for the calculation of GHG emission reduction. Also the SMA Cluster Controller is a data logger that receives the AC power value generated by the inverter (all 16 units) by communication from the inverter, adds up the received inverter generated power value, and stores it as the generated power value of the whole system. At a later date, it is possible to browse the amount of electricity generated on a specific day.

(Assessment result of the responses on CL08)

It was clarified that the electronic multimeter SQLC-100L is used for the measurement of electricity generation of the project solar PV. Therefore, this issue was closed.

(Issue raised as CL09)

It is requested to clarify the measurement methods and procedures stated in "Table 1: Parameters to be monitored ex post". For example, it is not clearly stated either Option B or Option is to be applied. In addition, it is not clear in the table about the frequency of calibration for the measurement equipment and the relevant requirement. And if available, it is requested to clearly state the above-mentioned aspects in a project specific manner in "Table 1: Parameters to be monitored ex post"

(Summary of the response on CL09)

Option C is applied. At the end of the month, integrated generated power is read and the difference from the previous month is recorded as the generated electric energy of the current month on the recording form. MPS is revised.

(Assessment result of the responses on CL09)

The measurement methods and procedures are clarified. It was confirmed that the MPS is revised appropriately to describe the relevant information in a project-specific manner. Therefore, this issue was closed.

(Issue raised as CL10)

It is not clearly described in the measurement methods and procedures how to keep and archive the monitored data.

(Summary of the response on CL10)

Write the monitoring data by handwriting on the recording form and keep it. Also, data monitored and required for verification and issuance be kept and archived electronically for two years after the final issuance of credits. MPS is revised.

(Assessment result of the responses on CL10)

It was confirmed that the procedure on the monitoring data keeping and archiving is clearly described in the revised MPS and it is in line with the JCM requirement. Therefore, this issue was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team concluded that Monitoring Plan of the proposed JCM project complied with the requirements of the methodology and/or PDD and Monitoring Guidelines, and the project participants had ability to implement the described Monitoring Plan including feasibility of Monitoring Structure Sheet.

C.8. Modalities of Communication

<Means of validation>

Through document review, it was confirmed that the Modalities of Communication (MoC), provided by one of the project participants, YKK, with whom JQA has a contractual relationship, had applied the latest version of MoC form. The date of submission indicated in the MoC was 12/12/2017, and it was considered to be valid. The validation team reviewed the website of each entity and confirmed its identity. In addition, through reviewing the business card of all project participants and focal points in the MoC, the validation team confirmed the personal identity including specimen signatures and employment status for all.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issue was raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team determined that the information of all project participants, including the focal point provided in the MoC and its correctness of authority, was appropriate.

C.9. Avoidance of double registration

<Means of validation>

It was confirmed preliminarily through review of the relevant website (e.g. UNFCCC website, Markit Environmental Registry, etc.) that the proposed JCM project had not been registered under other international climate mitigation mechanisms. The written confirmation of the avoidance of double registration was also provided through the signed MoC, and was cross-checked through interview with the project participants, with a satisfactory result.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issue was raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team concluded that the proposed JCM project was not registered

under the other international climate mitigation mechanisms at the stage of validation.

C.10. Start of operation

<Means of validation>

Through reviewing the documents, it was confirmed that the starting date of project operation was identified as 01/06/2016, which is the date that the project monitoring has been carried out from. It was confirmed that the date is not before 01/01/2013.

With respect to the confirmation of the starting date of the monitoring of the project, an issue was raised and resolved as mentioned in the section below.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

(Issue raised as CL03)

Through reviewing the project implementation schedule mentioned in the "Implementation report of the JCM model project under the financial support programme for leapfrog development by the Ministry of Environment", it was confirmed that the commissioning was completed in June 2016 and the monitoring has been started since August 2016. On the other hand, PPs described the starting date of project operation as 01/06/2016 in Section A.5. Duration of PDD. It is requested to clarify if the monitoring has been conducted appropriately since 01/06/2018, as the starting date of project operation is to be the start date of the first monitoring period.

(Summary of the response on CL03)

Monitoring has been carried out from June 1st, 2016 as this system was delivered by the maker of this system, Kyocera, the end of May in 2016.

(Assessment result of the responses on CL03)

The completion report of installation, commissioning and OJT training signed by KYOCERA and YKK Bangladesh dated on 26 May 2016 was provided. It was confirmed reasonable to define the project start date as 01/06/2016 which is the date that the project monitoring has been carried out from. Therefore, this issue was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team concludes that the start date of the proposed JCM project operation has been defined appropriately.

C.11. Other issues

<Means of validation>

No other issue was identified.

<Findings>

Please state if CARs, CLs, or FARs are raised, and how they are resolved.

No outstanding issue was raised.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

Not applicable.

D. Information on public inputs

D.1. Summary of public inputs

The PDD of the proposed JCM project, which was submitted in line with the Project Cycle Procedure, was made publicly available through the JCM website for public inputs. This call for public comments is open from 27/12/2017 to 25/01/2018. The specific JCM website is as below:

- https://www.jcm.go.jp/bd-jp/information/247

D.2. Summary of how inputs received have been taken into account by the project participants

No comment was received during the period of the public comments; therefore, no action was required to be taken into due account by PPs.

E. List of interviewees and documents received

E.1. List of interviewees

- Mr. Yoshifumi Maegawa, Environment and Safety Group, Quality and Environment Management Department, Fastening Products Group, YKK Corporation
- Mr. Tsuyoshi Nakao, Team Leader, Sustainability Management Team, ERM Japan

E.2. List of documents received

1	Project Design Document (draft) (JCM_BD004_PDD_Draft.pdf)
2	Monitoring Plan Sheet and Monitoring Structure Sheet (draft) (JCM_BD004_MPS_Draft.xlsx)
3	Modalities of communications statement, a validated version for submission of request for registration
4	Joint Crediting Mechanism Approved Methodology BD_AM002 “Installation of Solar PV System” (JCM_BD_AM002_ver01.0.pdf)
5	Monitoring Plan Sheet and Monitoring Structure Sheet BD_AM002 (JCM_BD_AM002_ver01.0.xlsx)
6	JCM Glossary of Terms (JCM_BD_Glossary_ver02.0)
7	JCM Project Cycle Procedure (JCM_BD_PCP_ver02.0)
8	JCM Modalities of Communication Statement Form (JCM_BD_F_MoC_ver01.0.pdf)
9	JCM Guidelines for Developing Project Design Document and Monitoring Report (JCM_BD_GL_PDD_MR_ver03.0)
10	JCM Project Design Document Form (JCM_BD_F_PDD_ver03.0.pdf)
11	JCM Guidelines for Validation and Verification (JCM_BD_GL_VV_ver02.0.pdf)
12	JCM Validation Report Form (JCM_BD_F_Val_Rep_ver01.0.docx)
13	Project information on Global Environment Center (GEC) website http://gec.jp/jcm/projects/15pro_ban_02/
14	Company profile of YKK Bangladesh Pte Ltd
15	Company profile of YKK Corporation
16	Completion report of installation, commissioning and OJT training signed by KYOCERA and YKK Bangladesh
17	The statutory useful life for the calculation of depreciation and amortization for solar PV system provided by National Tax Agency of Japan https://www.nta.go.jp/shiraberu/zeiho-kaishaku/shitsugi/hojin/05/12.htm
18	Operation and Maintenance Manual of 334.6kW Photovoltaic-Diesel Hybrid System for YKK Bangladesh Pte.Ltd.
20	Specification of Photovoltaic module Type: KK265P-3CF3CG

21	Brochure of the equipment to monitor output power of the solar PV system and irradiance -EKO Pyranometer -SMA Cluster Controller -Electricity meter SQLC-110L
22	Electric line diagram of the Fastening Manufacturing Plant of YKK Bangladesh Pte Ltd
23	The Environment Conservation Rules, 1997
24	The minutes of the local stakeholder consultation meeting, including the invitation letter and the attendees' list
25	Presentation materials for the local stakeholder consultation
28	Simulation of electricity generation by the project solar PV system by Kyocera
30	Business card with signature of each signatory of MoC
31	Material, record of OJT training conducted by Kyocera
32	Manual on operation, maintenance and safety measures of the facilities
33	Specification of the diesel generators Yanmar diesel engine generator set , model 6EY26L
34	Implementation report of the JCM model project under the financial support programme for leapfrog development by the Ministry of Environment
35	Project Design Document (revised) (JCM_BD_PDD_PV _Draft_rev2.0.docx)
36	Monitoring Plan Sheet and Monitoring Structure Sheet (revised) (JCM_BD_PV_Draft_rev1.0 .xlsx)

Annex Certificates or curricula vitae of TPE's validation team members, technical experts and internal technical reviewers

Statement of competence

Name: Mr. Koichiro Tanabe

Qualified and authorized by Japan Quality Assurance Organization.

Function

	Date of qualification
Validator	-
Verifier	2014/12/22
Team leader	2014/12/22

Technical area within sectoral scopes

	Date of qualification
TA 1.1. Thermal energy generation	2014/12/22
TA 1.2. Renewables	2014/12/22
TA 3.1. Energy demand	2014/12/22
TA 4.1. Cement and lime production	-
TA 4.6. Other manufacturing industries	2014/12/22
TA 5.1. Chemical industry	2014/12/22
TA 10.1. Fugitive emissions from oil and gas	2014/12/22
TA 13.1. Solid waste and wastewater	2014/12/22
TA 14.1. Afforestation and reforestation	-

Statement of competence

Name: Ms. Sachiko Hashizume

Qualified and authorized by Japan Quality Assurance Organization.

Function

	Date of qualification
Validator	2015/11/20
Verifier	2015/11/20
Team leader	-

Technical area within sectoral scopes

	Date of qualification
TA 1.1. Thermal energy generation	2015/11/20
TA 1.2. Renewables	2015/11/20
TA 3.1. Energy demand	2015/11/20
TA 4.1. Cement and lime production	-
TA 4.6. Other manufacturing industries	-
TA 5.1. Chemical industry	-
TA 10.1. Fugitive emissions from oil and gas	-
TA 13.1. Solid waste and wastewater	2015/11/20
TA 14.1. Afforestation and reforestation	-

Statement of competence

Name: Dr. Tadashi Yoshida

Qualified and authorized by Japan Quality Assurance Organization.

Function

	Date of qualification
Validator	2014/12/22
Verifier	2014/12/22
Team leader	2014/12/22

Technical area within sectoral scopes

	Date of qualification
TA 1.1. Thermal energy generation	2014/12/22
TA 1.2. Renewables	2014/12/22
TA 3.1. Energy demand	2014/12/22
TA 4.1. Cement and lime production	2015/11/12
TA 4.6. Other manufacturing industries	2014/12/22
TA 5.1. Chemical industry	2014/12/22
TA 10.1. Fugitive emissions from oil and gas	2014/12/22
TA 13.1. Solid waste and wastewater	2014/12/22
TA 14.1. Afforestation and reforestation	-