JCM Validation Report Form

A. Summary of validation

A.1. General Information

Title of the project	Eco-Driving by Utilizing Digital Tachograph System
Reference number	VN001
Third-party entity (TPE)	Lloyd's Register Quality Assurance Limited (LRQA)
Project participant contracting the TPE	Nippon Express Co., Ltd.
Date of completion of this report	22/07/2015

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 Socialist Republic of Viet Nam, in line with Vietnamese procedures.	☒
Local	The project participants have completed a local stakeholder	☒

Item	Validation requirements	No CAR or CL remaining
stakeholder consultation	consultation process and that due steps were taken to engage 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 a focal point, 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: Chiba	First name: Michiaki
Title: Climate Change Manager - Asia & Pacific	
Specimen signature: [redacted]	Date: 22/07/2015

B. Validation team and other experts

	Name	Company	Function*	Scheme competence*	Technical competence*	On-site visit
Mr. ☒ Ms. ☐	Michiaki Chiba	LRQA Ltd.	Team leader	☒	N/A	☒
Mr. ☒ Ms. ☐	Nguyen Tri Thang	External expert	Host country expert	☐	N/A	☒
Mr. ☒ Ms. ☐	Rama Ponnada	LRQA Ltd.	Sector expert	☐	Technical competence authorised	☐
Mr. ☒ Ms. ☐	Xianxin Yan	LRQA China	Internal reviewer	☒	N/A	☐

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>

The PDD was checked and confirmed as complete against JCM Guidelines for Developing PDD and MR No. JCM_VN_GL_PDD_MR_ver01.0. A valid form of the JCM PDD Form No. JCM_VN_F_PDD_ver01.0 is used for the PDD Version 1.0 dated 10/06/2015 (the first edition). It was re-checked for the revised PDD Version 1.3 dated 10/07/2015. The version is the final version on which the validation was completed.

<Findings>

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

No issue was identified to the requirement.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that the PDD was completed using the valid form of the JCM PDD Form and in accordance with the JCM Guidelines for Developing PDD and MR.

C.2. Project description

<Means of validation>

The project is to improve transportation fuel efficiency in 124 diesel-fired transportation fleet vehicles (64 trucks and 60 trailers) of Nippon Express (Viet Nam) Co., Ltd. (NEVT) through the use of a digital tachograph system, while providing the same level of freight transportation services. The digital tachograph system is composed of the hardware and software and applied with a tailor-made driver training system. The hardware component consists of an on-board terminal with a feedback indicator installed in each vehicle, and a server that will collect and process the information received via wireless signal from each vehicle. Sound indicators will warn the drivers in instances of inefficient driving. All the information is collected and processed using specialized software. The system enables the recording and analysis of driving patterns for use in personalized education in efficient driving principles. Each driver will receive individual feedback and evaluation of their skills from their supervisors. Regular group trainings are also planned. In this way, safer and more efficient driving patterns are expected to be introduced, leading to less fossil fuel consumption and less GHG emissions.

The project has two main operational bases in Hanoi and Ho Chi Minh City. Information of project locations is provided for NEVT's Quang Minh Warehouse for Hanoi operation and Song Than Logistics Center for Ho Chi Minh City operation.

The project is participated by Nippon Express (Vietnam) Co., Ltd. from the Socialist Republic of Viet Nam and Nippon Express Co., Ltd. (NE) from Japan.

The start date of the project is 01/08/2015 based on the current status of the equipment installation and preparation for the data collection. The expected operational lifetime of the project is for 10 years as the duration of digital tachograph system under normal use as confirmed by the equipment manufacturer.

The project implementation will lead to technology and know-how transfer from Japan. The digital tachograph system has already been introduced throughout the NE's operation in Japan. The Nippon Express Group has implemented a similar project in Malaysia under CDM "Nittsu Fuel Efficiency Improvement with Digital Tachograph Systems on Road Freight Transportation CDM Project in Malaysia" (Project No. 7455, registered on 28/09/2012), that demonstrated the additionality based on the first-of-its kind and no other case has been developed yet. The project was the first case in Vietnam as confirmed through researches and hearing from the stakeholders conducted by the PP including the government bodies, industrial associations, clients, technology suppliers and drivers, and the introduction in Viet Nam is expected to become a pioneering example for other truck companies in the county for implementation in a greater scale. The project receives financial supports to JCM model projects from the Ministry of the Environment, Japan.

The validation team assessed the PDD and the supporting documents, conducted a physical site visit to validate the requirements concerning accuracy and completeness of the project description. Through the processes taken, CAR and CLs were raised and subsequently closed as the resolution detailed below. The details of the persons interviewed and documents reviewed are provided in the Section E of this report.

<Findings>

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

Grade / Ref: CAR3

Nature of the issue raised:

Number of trucks and trailers to which the digital tachograph system is installed under the project indicated in PDD A.2. was incorrect for the Hanoi operation.

Nature of responses provided by the PP:

Table 1 of Section A.2. of the PDD was corrected for the number of trucks and trailers.

Assessment of the responses:

The validation team confirmed that the number of vehicles included in the project was corrected in the revised PDD with the details of trucks and trailers for the operations in Hanoi and Ho Chi Minh City as assessed through the on site assessment. The CAR was closed.

Grade / Ref: CL1

Nature of the issue raised:

Project locations in PDD A.3. should be given the details of facilities with geographic coordinates in a format of N 10º 10’ 00” and E 100º 10’ 00”.

Nature of responses provided by the PP:

The main facilities are specified for each of Hanoi and Ho Chi Minh City operation and the detailed information is provided including the geographic coordinates in the requested format in the revised PDD.

Assessment of the responses:

The validation team conducted on site assessment including the visits to the main facilities, interviewing the PP, and confirmed relevance of the information provided in the revised PDD. The CL was closed.

Grade / Ref: CL5

Nature of the issue raised:
The PP was requested to provide detailed information on the state-of-the-art technology and know-how to be transferred from Japan under the project.

Nature of responses provided by the PP:
The PP added explanation on the technology and know-how to be transferred from Japan under the project in the revised PDD.

Assessment of the responses:
The PP added explanation in the revised PDD to clarify that the technology and know-how on introducing the digital tachograph effectively support energy saving and safe driving that contribute in GHG emission reductions and social improvement in Vietnam. The validation team confirmed through reviewing the supporting documentation and interviewing during the on site assessment that the PP will apply the hardware and software package with the program including the training services and continuous supports proven effectiveness to energy saving and safe driving in Japan for a successful implementation of the first project in Vietnam. The CL was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team assessed the project description provided in the PDD with the supporting documents and conducted a physical site visit to validate the requirements on the accuracy and completeness. CAR and CLs raised were successfully closed as the resolution above detailed. The validation team confirmed that the proposed JCM project in the revised PDD is described in accurate and complete manners that is understandable the nature of the proposed project activity.

C.3. Application of approved methodology(ies)

<Means of validation>

The project applied the approved methodology: JCM_VN_AM001_ver01.0 "Transportation energy efficiency activities by installing digital tachograph systems" Version 01.0. The methodology is approved by the JC on 14/01/2015 and valid as of the time of the validation.

The validation team assessed if the selected methodology is applicable to the proposed project. The project applicability was checked against each criterion in the approved methodology selected. The steps taken to validate each eligibility criterion and conclusions about its applicability to the proposed project are summarised as below.

Criterion 1: This methodology applies to freight vehicle fleets to which a digital tachograph system has been installed.
Justification in the PDD: The fleet consists of 124 freight vehicles (54 in Hanoi and 70 in Ho Chi Minh City) to which the digital tachograph is installed. A list of the participating vehicles is provided in Annex II of the PDD.
Steps taken for assessment: CL6 was raised as detailed below since detailed information of freight vehicles was not included in the initial version of the PDD. The validation team confirmed based on the detailed information provided in the revised PDD the freight vehicles included in the project and the status of installation of the digital tachograph through the on site assessment. The digital tachograph equipment had been installed when the validation team visited the project sites and the registration numbers (the plate numbers) are used for unique identification of the freight vehicles included in the project.
Conclusion: The validation team confirmed that the Criterion 1 is satisfied by the project implemented with the freight vehicles to which digital tachograph has been installed.

Criterion 2: Data of fuel consumption and distance travelled before activation of digital tachograph system is available for each freight vehicle. The data is to be collected for at least 60 days within 4 months of lower monthly mean temperature of the year (November, December, January and February).
Justification in the PDD: Data for fuel consumption and distance traveled before the activation of the digital tachograph system are available for each vehicle in the fleet. The data are collected for at least 60 days for each vehicle in the period 01/11/2014 – 28/02/2015.
Steps taken for assessment: CAR4 was raised as detailed below since the period for collecting reference data for Ho Chi Minh City based vehicles was indicated as 18/11/2014 – 28/02/2015 in the initial version of the PDD but the data during 01/11/2014 – 17/11/2014 is also used. The validation team confirmed that the period indicated in the revised PDD matches the data that was validated through the on site assessment in details. The project intends to include all the freight vehicles owned by NEVT but some newly added vehicles are excluded since sufficient data was not available for determination of the reference emissions.
Conclusion: The validation team confirmed that the data of fuel consumption and distance travelled before activation of digital tachograph system was collected and made available for each freight vehicle for more than 60 days during 01/11/2014 to 28/02/2015 and the Criterion 2 is satisfied by the project.

Criterion 3: The project includes feedback of a driver's performance with the graphical representation to the driver regularly, at least once in three months.
Justification in the PDD: The project includes feedback of the driver's performance with graphical representation at least once a month.
Steps taken for assessment: The validation team reviewed the plan and interviewed related parties.
Conclusion: Through review of the related documents and interviews during the on site assessment, the validation team confirmed that the PP plans to conduct regular feedback with graphical representation to the drivers at the specified frequency that meets the requirement of the Criterion 3.

Criterion 4: The project does not involve a fuel switch in existing freight vehicles, except for an optional switch to biofuel blends where the blending ratio is not greater than 20% by volume, in which case emission reductions are discounted by the percentage of biofuel in the blend.
Justification in the PDD: The project does not involve fuel switch in existing vehicles. In case of an optional switch to biodiesel blends where the blending ratio is not greater than 20 % by volume, the emission reductions will be discounted accordingly by the percentage of biofuel in the blend.
Steps taken for assessment: CL7 was raised as detailed below since how use of blended biofuel through the project period if occurs will be handled by the project was unclear in the initial version of the PDD. The validation team confirmed that a clarification was added in the revised PDD to address the point.
Conclusion: The validation team confirmed that the project does not include a fuel switch of the existing freight vehicles, and if blended biofuel of a blend ratio not greater than 20% is used, the emission reductions will be discounted to the biofuel portion of the blend fuel in accordance with the applied methodology. Therefore the Criterion 4 is satisfied by the project.

Criterion 5: The project participants identify each freight vehicle included in the project, and ensure that the type of service of the freight vehicle is the same before and during the project (e.g. refrigeration vehicle remains as a refrigeration vehicle, etc.).
Justification in the PDD: All 124 vehicles included in the project are uniquely identified by their plate numbers. The type of service of the vehicles is specified and is not expected to change after the project implementation. In case the type of services changes after the project implementation for any particular vehicles, that vehicle will be excluded from the project.

Steps taken for assessment: CL8 was raised as detailed below since how the PP will ensure that the type of service of the freight vehicles is unchanged during the project was unclear in the initial version of the PDD. The validation team reviewed the type of service specified for each freight vehicle, interviewed the PP through the on site assessment and confirmed that the vehicles included in the project are uniquely identified with specified type of service that will be maintained throughout the project period.
Conclusion: The validation team confirmed by reviewing the PDD and supporting evidence and through the on site assessment that the vehicles included in the project have unique identification numbers and the specified type of service that will be maintained as the same throughout the project period. The Criterion 5 is therefore satisfied by the project.

Criterion 6: A plan to present new reference data for freight vehicles of new routes in case route changes have occurred due to construction of new expressways or to modal shift after the introduction of the project is prepared.
Justification in the PDD: A declaration confirming that a plan to present new reference data for freight vehicles of new routes in case route changes have occurred due to construction of new expressways or to modal shift after the introduction of the project is provided in Annex I to the PDD. A summary of the plan is prepared and presented to the the validation team.
Steps taken for assessment: CAR5 was raised as detailed below since a detailed plan was not prepared to present new reference data for new routes or modal shift at the initial stage of validation besides the declaration. The validation team reviewed the revised PDD and the detailed plan to determine new reference data and confirmed fulfilment of the Criterion 6.
Conclusion: The validation team confirmed that the PP prepared a plan to present new reference data for new routes or modal shift after introduction of the project in accordance with the Criterion 6.

<Findings>

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

Grade / Ref: CAR4

Nature of the issue raised:

The period of data collection indicated for Criterion 2 of the Eligibility Criteria was incorrect for Ho Chi Minh City based vehicles.

Nature of responses provided by the PP:

The explanation to Criterion 2 was corrected and it states now that the data collection period is 01/11/2014 - 28/02/2015 for both Hanoi and Ho Chi Minh City operations.

Assessment of the responses:
The validation team confirmed that the indication of the period for collecting historical data was corrected in the revised PDD as assessed through the on site assessment. The CAR was closed.

Grade / Ref: CAR5
Nature of the issue raised:
A detailed plan to present reference data for freight vehicles to route changes and modal shifts was not provided at the initial stage of validation to demonstrate fulfilment of Criterion 6 of the Eligibility Criteria.

Nature of responses provided by the PP:
The PP provided a detailed plan to present reference data for freight vehicles to route changes and modal shifts.

Assessment of the responses:
The validation team confirmed that the PP provided a plan for the new reference data in compliance with the requirement of Criterion 6 of the Eligibility Criteria. The CAR was closed.

Grade / Ref: CL6
Nature of the issue raised:
The PP was requested to provide the detailed information of freight vehicle fleets to which the digital tachograph system is installed to demonstrate fulfilment of Criterion 1 of the Eligibility Criteria.

Nature of responses provided by the PP:
The PP added the information of freight vehicles with the Annex II for the full list of vehicles included in the project.

Assessment of the responses:
The validation team confirmed that the detailed information of the vehicles included in the project was added in the revised PDD as assessed through the on site assessment. The CL was closed.

Grade / Ref: CL7
Nature of the issue raised:
The PP was requested to demonstrate how it fulfils the requirement of Criterion 4 of the Eligibility Criteria when a use of blended biofuel occurred during the project period.

Nature of responses provided by the PP:
The explanation to Criterion 4 was amended including that in case of an optional switch to biodiesel blends where the blending ratio is not greater than 20 % by volume, the emission reductions will be discounted accordingly by the percentage of biofuel in the blend.

Assessment of the responses:
The PDD was revised to clarify that the emission reductions will be discounted if a blended biofuel with the blend ratio not greater than 20% is used during the project period to demonstrate fulfilment of the requirement of Criterion 4 of the Eligibility Criteria. The validation team confirmed through background research, on site assessment and interviews that production of biodiesel fuel is still in an experimental and pilot scale and it is not available in Vietnam on a commercial basis as of the day, and a legal requirement is not anticipated to become effective in force in a near future. When it is used though unexpected during the project period, the portion of biofuel in the blend will be discounted from the emission reductions calculation by the PP in accordance with the approved methodology. The CL was closed.

Grade / Ref: CL8
Nature of the issue raised:
The PP was requested to clarify how the type of service of vehicles will be confirmed as unchanged after the project implementation to demonstrate fulfilment of the Criterion 5 of the Eligibility Criteria.

Nature of responses provided by the PP:
The type of service of the vehicles is specified and is not expected to change after the project implementation, because the project involves only the installation of digital tachographs on vehicles without other operational changes. A list confirming the current type of service was submitted to the validation team. It is further stated that in case the type of services changes after the project implementation for any particular vehicles, that vehicles will be excluded from the project.

Assessment of the responses:
The PP specified the type of service of the freight vehicles and information will be maintained throughout the project period to ensure that the type of service is the same before and during the project. The validation team confirmed no refrigeration vehicle is included through review of documents, interviewing the PP and on site assessment. The CL was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that the project applied the valid version of the approved methodology and the applicability was demonstrated to the eligibility criteria as appropriate.

C.4. Emission sources and calculation of emission reductions

<Means of validation>

The project accounts for CO2 emissions from consumption of fossil fuel by freight vehicles in accordance with the approved methodology. The reference emissions are calculated for each freight vehicle by reference fuel efficiency, travel distance during the project period, fuel NCV and CO2 emission factor. The reference fuel efficiency is determined conservatively for each freight vehicle based on the actual measurement before activation of digital tachograph system at least 60 days in 4 months of lower monthly mean temperature of a year in Vietnam, that are November, December, January and February. The PP has collected the data of fuel consumption and travel distance for each vehicle included in the project for more than 60 days during the period from 01/11/2014 to 28/02/2015 to determine the reference emissions. Freight ton-km data was not used due to limitation of available data. The project emissions are calculated for each freight vehicle by the fuel consumption, fuel NCV and CO2 emission factor, then the emission reductions are determined as the difference of the reference emissions and the project emissions, but the emission reductions are limited to 10% of the reference emissions at maximum in accordance with the methodology. In absence of country specific data, the fuel NCV and CO2 emission factor were chosen from the lower limit values of the default values in 2006 IPCC Guidelines for National Greenhouse Gas Inventory in accordance with the methodology.

The validation team assessed the documented evidence and by means of on site visit confirmed that all the relevant GHG emission sources covered in the applied methodology are addressed, and the steps taken and the equations applied to calculate project emissions and reference emissions for the proposed project comply with the

requirements of the approved methodology.
The average fuel saving rate of 7% as estimated in the FSR is used for the ex-ante estimation of the emission reductions. The actual emission reductions will be lower at the initial time and gradually increase along with improvement of driver's eco-driving skill by continuous training to be implemented after installation of the digital tachograph, but the emission reductions are not expected to exceed 10% from the reference emissions. The annual emission reductions are estimated ex ante 328 tCO2e.
Through the processes taken, CARs and CL were raised and subsequently closed as the resolution detailed below. It was noted that the PP decided to change the start date of the project to 01/08/2015 along with revision of the PDD during the validation process as the date when the actual project operation is expected to start, i.e. digital tachograph systems are installed and the data collection and processing system (incl. feedback mechanisms) is in place. Therefore, emission reductions in 2015 will occur only over a period of five months (August - December 2015).
The details of the persons interviewed and the documents reviewed are shown in the Section E of this report.

<Findings>

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

Grade / Ref: CAR2
Nature of the issue raised:
The default NCV of diesel oil from 2006 IPCC Guidelines was incorrectly indicated as 41.1 TJ/kt. The PP also needed to demonstrate appropriateness of diesel density used for the unit conversion.

Nature of responses provided by the PP:
The PP corrected error and the correct value of 41.4 TJ/kt is indicated in the revised PDD. The density of diesel oil was also amended to follow the Vietnamese Standard TCVN 5689:2005.

Assessment of the responses:
The validation team reviewed and confirmed that the PP corrected the indication of fuel NCV and applied diesel density for unit conversion following the Vietnamese Standard TCNV 5689:2005 in the revised PDD. The CAR was closed.

Grade / Ref: CL2
Nature of the issue raised:
The ex-ante estimation of PFCi,p and PDi,p in the Monitoring Plan Sheet were based

on the period p that is the same as the period b used for collecting FCi,before and Di,before, i.e. for 4 months for Hanoi-based vehicles and about 3.5 months for Ho Chi Minh-based vehicles. The PP should add explanation of the period p and clarify the calculation process of the estimated emissions reductions in a year presented in the PDD C.3.

Nature of responses provided by the PP:
The Monitoring Plan Sheet was amended and clarified that the period p equals the reference period before (4 months). The values for the period p (4 months) were prorated on an annual basis and reported in the PDD.

Assessment of the responses:
The PP presented the revised PDD and the Monitoring Plan Sheet that includes explanation for the period p. The CL was closed.
Related issues were resolved in CAR4 above and CAR7 below.

Grade / Ref: CAR7
Nature of the issue raised:
The PP needed to submit revised Monitoring Plan Sheet with the data for FCi,before and Di,before reviewed and corrected as relevant, as errors were identified through the internal data verification and the on site validation assessment.

Nature of responses provided by the PP:
The PP corrected the errors and submitted the revised dataset for further validation.

Assessment of the responses:
The data set was amended and the calculation was reflected in the revised PDD. The validation team confirmed that the errors identified through the internal data verification by the PP and the on site assessment by the validation team were addressed in the revised PDD and the supporting calculation sheets.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that:
- The methodology was applied correctly to calculate project emissions and reference emissions and no other significant emission source was identified that would be affected and reasonably attributed by implementation of the proposed project but not addressed by the applied methodology;

- The choice of whether an emission source or gas is to be included where the applied methodology allows was reasonably justified by the PP;
- The Monitoring Plan Sheet was not altered and the fields were filled in as required so that all estimates of the reference emissions could be replicated using the data and parameter values provided in the PDD;
- The values for the project specific parameters fixed ex ante listed in the Monitoring Plan Sheet were appropriate with all the data sources and assumptions and the calculations were correct to the proposed JCM project;
- All assumptions and data used by the PP were listed in the PDD, including their references and sources; and
- All values used in the PDD were considered reasonable in the context of the proposed JCM project.

C.5. Environmental impact assessment

<Means of validation>

The proposed project is to implement eco-driving by utilizing digital tachograph system to reduce fossil fuel consumption by freight vehicles and the PDD stated that an environmental impact assessment is not required by laws of the host country. The validation team assessed the applicable legal requirements in the host country using its local expertise. A CAR was raised and subsequently closed as detailed below.

The details of the persons interviewed and documents reviewed are provided in the Section E of this report.

<Findings>

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

Grade / Ref: CAR6

Nature of the issue raised:

The PP needed to select either Yes or No on whether the proposed project is subject to an environmental impacts assessment under the national or local regulations.

Nature of responses provided by the PP:

Section D. was corrected and clearly states that there are no legal requirements for environmental impact assessment.

Assessment of the responses:

The PDD Section D. was revised in accordance with the Guidelines for Developing PDD and MR. The CAR was closed.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed by assessing the relevant documents and using the local expertise and raised CAR to confirm the PDD follows the Guidelines for Developing PDD and MR. The finding was subsequently closed as the resolution detailed above and the validation team confirmed that the project does not need an environmental impacts assessment to be conducted to meet the legal requirement of the host country and the PDD satisfies the requirements of the JCM.

C.6. Local stakeholder consultation

<Means of validation>

The PP identified the local stakeholders including drivers of NEVT's freight vehicles, the clients, the professional associations and the Vietnamese government entities, and collected their comments on the proposed project through a series of stakeholders' consultation meetings from 25/01/2015 to 05/06/2015. The local stakeholders appreciated the project and provided supportive comments. No negative issue was raised through the processes that require actions to be taken by the PP.

The validation team confirmed appropriateness of the processes taken for the local stakeholders' consultation by reviewing the records of the meetings and interviewing during the on site assessment. The details of the persons interviewed and documents reviewed are provided in the Section E of this report.

<Findings>

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

No issue was raised to the requirement of the section.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that the PP have invited comments to the proposed project from the relevant local stakeholders, the summary of the comments received is provided in the PDD in a complete manner and the PP have taken due account of all the comments received from the local stakeholders as the processes described in the PDD.

C.7. Monitoring

<Means of validation>

The Monitoring Plan consisting of the Monitoring Plan Sheet and Monitoring Structure Sheet is based on the approved methodology.

There are two parameters to be monitored ex-post, (1) the project fuel consumption of freight vehicles PFCi,p and (2) the project distance travelled by freight vehicles PDi,p. The parameter PFCi,p applies the monitoring option B and the amount of fuel purchase

bills is used. The data is to be aggregated on a monthly basis in accordance with the methodology. The Ho Chi Minh City operation has an in-house fuel tank with 20 kL capacity. The records of in-house fuelling station are used to divide the total purchase amount of the in-house fuel tank into individual vehicles (Please refer to CAR1 and the resolution below detailed for the procedures confirmed through the validation). The stock in the in-house fuel tank and the fuel tank of vehicles has little impact to the total fuel consumption through the project period and is not considered in accordance with the approved methodology. The parameter PDi,p is measured continuously by GPS tracking system.

The project specific parameters to be fixed ex ante includes NCV and CO2 emission factor of fuel used by freight vehicles NCVi and EFCO2,i, fuel consumption and distance travelled by freight vehicles measured before activation of digital tachograph system FCi,before and Di,before, and the reference fuel efficiency of freight vehicles ηRE,i. The lower limit values from 2006 IPCC Guidelines for National Greenhouse Gas Inventory are applied to NCVi and EFCO2,i in accordance with the approved methodology. The data for the parameters FCi,before and Di,before is collected for each freight vehicle more than 60 days within 4 months of lower monthly mean temperature of the year, from 01/11/2014 to 28/02/2015 to determine ηRE,i in accordance with the approved methodology.

The validation team confirmed that the Monitoring Plan complied with the requirements in the approved methodology and that the PP will be able to apply the Monitoring Plan following the monitoring arrangements described in it. CAR and CLs were closed after reviewing of the corrective action and clarification undertaken by the PP through the validation while FAR1 was issued to draw a specific attention at the first verification that does not prevent the project from registration as a JCM project.

<Findings>

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

Grade / Ref: CAR1

Nature of the issue raised:

Monitoring point numbers were not indicated in PDD C.2. The PP should clarify if the monitoring points represent positions of the monitoring equipment, fuel receiving points, or else.

Monitoring option was not selected either Option B or Option C for parameter PFCi,p. Should Option C be selected, the PP needed to confirm whether national laws and regulations on measurement exist and calibration is conducted as applicable.

Nature of responses provided by the PP:

Monitoring point numbers were added to Section C.2. of the revised PDD and the figure was amended to clearly indicate the type of monitoring positions and monitoring equipment.

The monitoring option B was selected for parameter PFCi, p.
In Hanoi, the data is obtained from fuel purchase invoices/receipts of NEVT. In case of in-house refueling in Ho Chi Minh City, in addition to fuel purchase invoices/receipts of NEVT, fuel consumption of individual vehicles will be determined based on internal refueling records.
A description of the procedures for determining the fuel consumed by each vehicle of Ho Chi Minh City operation based on the procurement records and the internal refueling records has been prepared and submitted to the validation team for review.

PFCi,p applies Option B where the data is based on official purchase documents and is not subject to calibration.
PDi,p applies Option C. The system has a level of precision equivalent to the "Black Box" devices approved by the Vietnamese Government. The digital tachograph system is subject to regular maintenance and operational control as per the manufacturer's requirements and/or Vietnamese Government regulations (in case the digital tachograph is approved as a "Black Box" device in the future).

Assessment of the responses:
The PDD C.2. was added the monitoring point numbers for the below.
(1) PFCi,p: Fuelling stations (Option B)
(2) PDi,p: Digital Tachograph on-board terminal of vehicles

Fuel purchased at the in-house fuel tank in Ho Chi Minh City also supplies to the vehicles excluded from the project. The records of fuelling to individual vehicles from the in-house fuelling station (using one fuel meter) are used to divide the total purchased fuel amount of the in-house fuel tank into the individual vehicles included in the project in accordance with the approved methodology. The fuel consumed by an individual vehicle included in the project is determined by the (total amount refueled in-house for the vehicle) x (total fuel purchased for in-house fuel tank) / (total amount refueled in-house for all the vehicles) + (total amount refueled at external fueling stations). The in-house fuel tank only exists in Ho Chi Minh City and fuel used by Hanoi based vehicles is determined by sum of the fuel purchased at external fueling stations only.

The total amount of fuel used is determined by the purchased amount following the monitoring option B that meets the requirement of the approved methodology. The PP provided the detailed procedures for determination of fuel consumption by vehicles of Ho Chi Minh City operation that will be integrated with the detailed monitoring procedures (Ref FAR1).

The digital tachograph system is not a subject of the governmental regulations for measuring instruments in Vietnam. The Vietnamese Government has been implementing in phases the regulatory requirements for installation of the route monitoring equipment to transport business by auto and all the freight vehicles included in the project have been installed the equipment (called Black Box). The Black Box devices having the similar GPS tracking functions to record travel distance as the project digital tachograph system are approved by the Vietnamese Government and subject to regular quality controls, that the output data can be compared with that of the project digital tachograph system for calibration. The digital tachograph system is maintained and quality controlled in accordance with the manufacturer's specifications, but it will follow the Government's requirements if the project digital tachograph system is approved as a Black Box device and the current Black Box device is removed from the project vehicles in the future.

The validation team assessed the monitoring plan by reviewing the regulations, procurement records, technical specification of measuring devices, and the other supporting documents, and conducted on site assessment including physical observation and interviews with related parties and confirmed that the monitoring plan as described in the revised PDD is developed in accordance with the Guidelines for Developing PDD and MR and the approved methodology, in line with the applicable Vietnamese Regulations, and based on the available data sources. The CAR1 was closed.

Grade / Ref: CL3
Nature of the issue raised:
QA/QC procedures applied to the monitoring parameters should be described in the Monitoring Plan Sheet.
The measuring instruments used and provisions for maintenance and control should be clarified.

Nature of responses provided by the PP:

QA/QC procedures applied to the monitoring parameters were added to the revised Monitoring Plan Sheet under (h) Measurement methods and procedures. Under the same section, additional explanation was added on the equipment maintenance and control. The measuring instruments were also clarified under (g) Source of data.
The QA/QC procedures in the monitoring plan include the below.

1) PFCi,p
In case of any irregular values, the data are compared against the accounting information of NEVT and/or internal target values for fuel efficiency and/or data from the fuel sensor of the digital tachograph system.

2) PDi,p
The digital tachograph system is subject to regular maintenance and operational control as per the manufacturer's requirements and/or Vietnamese Government regulations. All data is backed up in an SD card installed in each on-board terminal of the digital tachograph system. Any irregular values will be double-checked against the drivers' daily reports for each vehicle or the GPS data from the "Black Box" devices.

Assessment of the responses:
The QA/QC procedures were revised as appropriate to the Monitoring Plan.
The parameter PFCi,p is based on the transaction with fuel suppliers. The data will be cross checked with accounting data or fuel efficiency data that are managed by NEVT as relevant. Data from the fuel sensor of the project digital tachograph system is considered as another source of data usable for quality check of the parameter.
The parameter PDi,p is measured by the digital tachograph system using GPS tracking. The measured data is secured in the back-up server and SD card to prevent from loss or transmission error. The data will be cross-checked with odometer readings in the drivers' log or GPS tracking data of the Black Box.

The validation team conducted on site assessment including reviews of measuring instruments, data management systems and output data, and interviews with key monitoring and management personnel of both Hanoi and Ho Chi Minh City operations, and confirmed that the QA/QC procedures were appropriately added in the revised Monitoring Plan Sheet. The CL was closed while FAR1 was issued as below to confirm the detailed monitoring procedures being established through the first verification.

Grade / Ref: CL4

Nature of the issue raised:
The PP should confirm that the monitored data will be kept and archived for two years after final issuance of credits.
Procedures should be clarified for data collection, archiving and reporting in the Monitoring Structure Sheet.

Nature of responses provided by the PP:
A statement that the monitored data will be kept and archived for two years after final issuance of credits was added in the revised PDD. The procedures for data collection, archiving and reporting were clarified in the revised Monitoring Structure Sheet.

Assessment of the responses:
The PP presented the revised Monitoring Plan Sheet including the Monitoring Structure Sheet. The validation team confirmed the provisions for the monitoring and management activities through the on site assessment and interviewing the key personnel of the PP as appropriate. The CL was closed.

Grade / Ref: CL9
Nature of the issue raised:
The PP needed to clarify how it will deal with the freight transportation beyond the territory of Vietnam, if occurs.

Nature of responses provided by the PP:
The monitoring plan sheet was amended to clarify that the fuel consumption for trips and the distance travelled outside the borders of Vietnam will be excluded from the total fuel consumption and the total distance travelled for each vehicle.

Assessment of the responses:
The Monitoring Plan Sheet was revised to clarify that an activity outside the borders of Vietnam is excluded from the project.
There is possibility of long distance trips from Hanoi to Lao PDR and Ho Chi Minh City to Cambodia crossing the borders of Vietnam. The routes and destinations are specified and a cross border trip if occurred is recorded in the order sheet and the driver's report. The travel distance measurement using GPS tracking system can specify travel distance outside Vietnam that will be excluded from the project. The driver's record includes location of fuelling stations if re-fuelled the vehicle and fuel purchase receipt must be kept. Diesel fuel price is under government control in Vietnam and it is lower

than Lao PDR and Cambodia. According to the fuel price data published by the World Bank, average diesel prices in year 2014 are 19% and 36% higher in Lao PDR and Cambodia respectively than it in Vietnam. The PP does not purchase fuels outside Vietnam under the current conditions. The validation team conducted on site assessment including reviews of cross border operation and historical records, and interviews with drivers and management personnel of both Hanoi and Ho Chi Minh City operations, and confirmed that an activity outside Vietnam if occurs will be excluded from the project as stated in the revised Monitoring Plan Sheet. The CL was closed.

Grade / Ref: FAR1
Nature of the issue raised:
The PP should establish detailed monitoring procedures that include how to implement the QA/QC to assure reliability of the monitored data during the monitoring period.
Detailed monitoring procedures will be established as part of a monitoring manual that is currently being developed for the project. This is to be assessed through the first verification.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that the MP was described in compliance with the requirements of the approved methodology and the Guidelines for developing PDD and MR, and the PP have demonstrated feasibility of the monitoring structure and their ability to implement the MP.

C.8. Modalities of Communication

<Means of validation>

The MoC was submitted to LRQA for review in the form JCM_VN_F_MoC_ver01.0 that nominates Nippon Express Co., Ltd. as the focal point and was signed by the authorized representatives of all the PPs with the contact details. The form used is the latest one as of the time of validation.

The validation team assessed the personal identities including specimen signatures and employment status of the authorized signatories through reviewing the written confirmation from the PP with whom LRQA contracted the validation, namely Nippon Express Co., Ltd. The written confirmation was issued by Mr. Hiromi Iguchi whose authorization by Nippon Express Co., Ltd., the focal point of the PP, was confirmed by a documentary evidence issued by Nippon Express Co., Ltd., and it confirms that all corporate and personal details including specimen signatures are valid and accurate as

requested in the JCM Guidelines for Validation and Verification. The validation team also confirmed through reviewing the corporate information of the PP and by meeting the persons representing the PP that the information provided in the MoC is correct.

<Findings>

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

No issue was raised to the requirement of the section.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that the MoC was completed using the latest form. Relevance of the MoC was assessed and confirmed in compliance with the requirements of the JCM Guidelines.

C.9. Avoidance of double registration

<Means of validation>

The validation team assessed and confirmed relevance of the written confirmation in the MoC from the PP that the proposed JCM project was not registered under the other international climate mitigation mechanisms.

The team in addition to the interviews with the PP checked publicly accessible information of Clean Development Mechanism (CDM), Joint Implementation (JI), Verified Carbon Standard (VCS) and Gold Standard (GS) and found no identical project as the proposed JCM project in terms of the name of entities, applied technology, scale and the location. The result of researches confirmed that the proposed project was not registered under the other international climate mitigation mechanisms than JCM and it will not result in a double counting of GHG emission reductions.

Particular attention was given to that there is an approved small scale CDM methodology AMS III.AT. Transportation energy efficiency activities installing digital tachograph system or similar devices to transport fleets, and a project activity titled "Nittsu Fuel Efficiency Improvement with Digital Tachograph Systems on Road Freight Transportation CDM Project in Malaysia" has been registered (Project No. 7455) applying the methodology. The project is developed by Nippon Express Co., Ltd., who is the PP of this JCM project and no other project has been proposed for registration as a CDM project.

<Findings>

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

No issue was raised to the requirement of the section.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed that the proposed JCM project was not registered under the other international climate mitigation mechanisms.

C.10. Start of operation

<Means of validation>

The start date for the operation of the proposed JCM project is indicated as 01/08/2015 in the revised PDD, changed from 01/03/2015 in the initial version of the PDD considering the current status of the project implementation.

The validation team confirmed correctness/relevance of the information by reviewing the supporting evidence and on site visit and that the date is not before 01/01/2013 as required to be eligible as a JCM project.

<Findings>

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

No issue was raised to the requirement of the section.

<Conclusion based on reporting requirements>

Please state conclusion based on reporting requirements.

The validation team confirmed through the on site assessment that the start date of operation of the proposed JCM project is 01/08/2015 and not before 01/01/2013 as required to be eligible as a JCM project.

C.11. Other issues

<Means of validation>

No issue was identified as relevant element not covered above.

<Findings>

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

Not applicable

<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

In line with the JCM Project Cycle Procedure, the PDD is to be made publicly available for 30 days to invite public comments. The PDD was made publicly available in line with the requirements of the procedure for the period of 12/06/2015 to 11/07/2015 as per https://www.jcm.go.jp/vn-jp/projects/7.

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

No comment was received during the above period to receive public inputs.
Thus no action was required to be taken by the PP to satisfy the JCM requirement.

E. List of interviewees and documents received

E.1. List of interviewees

Nippon Express Co., Ltd.
Tomohiro Iida, Manager, Business Development Division

Nippon Express (Vietnam) Co., Ltd.
Lam Dieu Tam Hao, Manager, Planning & Administrative Department
Nguyen Minh Duc, Deputy Manager, Transportation Department
Le Thanh Hai, Staff
Nguyen Duc Dong, Staff
Nguyen Van Chinh, Deputy General Manager, Logistics Dept., Hanoi Branch
Hiroaki Mino, Sales Senior Manager, Hanoi Branch
Nguyen Tran Duc, Supervisor, Hanoi Branch
Pham Van Quyet, Operator, Trailer Control Dept., Hanoi Branch
Vong Phu Thinh, Driver
Nguyen Quang Ninh, Driver
Cao Duc Khunh, Driver

Nittsu Research Institute and Consulting, Inc.
Toshikazu Muroga, Senior Researcher, Logistics Engineering & Environment Division
Daijiro Sato, Senior Researcher, Safety Consulting Division

Mitsubishi UFJ Morgan Stanley Securities Co., Ltd.
Vladislav Arnaoudov, Senior Consultant, Clean Energy Finance Division

E.2. List of documents received

Category A documents (documents prepared by the PP) - PDD with the annexes Version 1.0 dated 10/06/2015, Version 1.1 dated 19/06/2015, Version 1.2 dated 06/07/2015 and Version 1.3 dated 10/07/2015 - MoC dated 27/05/2015 - Letter of Confirmation for MoC, Nippon Express Co., Ltd. dated 18/06/2015 - Documentary evidence for authorised persons of Nippon Express Co., Ltd. - Technical specification of the digital tachograph system - Feasibility Study Report for CO2 Emission Reduction in Road Freight Transport Project through Employment of Cloud Computing Platform, Nittsu Research Institute and Consulting, Inc., March 2011 - Letter from Negeri Sembilan Lorry Operators' Association dated 17/05/2012 - Letter from Land Public Transport Commission dated 21/05/2012 - JCM Project Schedule - Organization Charts - Outline of the procedures for collection of new reference data in case of new expressway construction or modal shift Version 01.0 dated 06/07/2015 - Procedures for Determining the Fuel Consumption of the Freight Transport Vehicles belonging to the Nippon Express (Vietnam) CO., Ltd. Operations in Ho Chi Minh City, Vietnam Version 01.0 dated 10/07/2015 - Vietnam JCM Data Sheet - Fuel receipts - Daily driver reports - Black Box data - Fuel inventory - Certificate for level measurement device - Guarantee Certificate for SRV Digitacho N, Datatec - Letter of Confirmation for lifetime of digital tachographs, Datatec, dated 18/06/2015 - Introduction of digital tachograph, Nittsu Research Institute and Consulting, Inc., January 2015 - Diesel Specifications TCVN 5689:2005 - Malaysian Standard MS 2008: 2008 for Automotive Fuels – Palm Methyl Esters (PME) for Diesel Engines – Requirements and Test Methods - Registration Certificates for Vehicles included in the JCM project - Monitoring System, Data Management, Drivers' Training and Feedback - The Government Decree No. 29/2011/ND-CP Providing Strategic Environmental

Assessment, Environmental Impact Assessment and Environmental Protection Commitment
- Local Stakeholders' consultation, June 2015
- Records on the Stakeholders Consultation for the Proposed Project (25/01/2015 - 05/06/2015)
- The Government Decree No. 86/2014/ND-CP on Business and Conditions for Transport Business by Auto
- No. 86/2014/TTLT-BTC-NHNNVN

Category B documents (other documents referenced)
- JCM_VN_AM001_ver01.0 Transportation energy efficiency activities by installing digital tachograph systems, Version 1.0
- JCM Project Cycle Procedure JCM_VN_PCP_ver02.0
- JCM Guidelines for Validation and Verification JCM_VN_GL_VV_ver01.0
- JCM Guidelines for Developing PDD and MR JCM_VN_GL_PDD_MR_ver01.0
- JCM Glossary of Terms JCM_VN_Glossary_ver01.0
- JCM PDD Form JCM_VN_F_PDD_ver01.0
- JCM MoC Statement Form JCM_VN_F_MoC_ver01.0
- JCM Validation Report Form JCM_VN_F_Val_Rep_ver01.0
- Approved Small Scale Methodology AMS III.AT. Transportation energy efficiency activities installing digital tachograph systems or similar devices to transport fleets
- Corporate profile, Nippon Express
- 2006 IPCC Guidelines for National Greenhouse Gas Inventory
- Joint Guidelines for CO2 Emissions Calculation Methodologies for Logistics Sector Version 3.0, the Ministry of Economy, Trade and Industry (METI) and the Ministry of Land, Infrastructure, Transport and Tourism, March 2007
- SR News, Datatec
- PDD for Nittsu Fuel Efficiency Improvement with Digital Tachograph Systems on Road Freight Transportation CDM Project in Malaysia (Project No. 7455)
- Validation Report for Nittsu Fuel Efficiency Improvement with Digital Tachograph Systems on Road Freight Transportation CDM Project in Malaysia (Project No. 7455)
- Monitoring Report (the Monitoring Period 1) for Nittsu Fuel Efficiency Improvement with Digital Tachograph Systems on Road Freight Transportation CDM Project in Malaysia (Project No. 7455)
- Verification and Certification Report for Nittsu Fuel Efficiency Improvement with Digital Tachograph Systems on Road Freight Transportation CDM Project in Malaysia (Project No. 7455)

- Approved small scale baseline and monitoring methodology AMS III.AT. Transportation energy efficiency activities installing digital tachograph systems or similar devices to transport fleets Version 02.0
- J-Credit Methodology EN-S-023 Introduction and utilisation of digital tachograph or similar devices to assist eco-driving Version 1.0
- JVER Methodology No. E023 Version 2.2 Eco-driving by installation of digital tachograph or similar devices
- Registration and certification documents for JVER CO2 reduction eco-driving project by Nagasaki Kokubu (Project No. 0116)
- Southeast Asia Energy Outlook, IEA, September 2013
- The Ministry of Transport Circular No. 73/2014/TT-BGTVT National Technical Regulation on Automobile Tachograph
- The Ministry of Transport Circular No. 08/2011/TT-BGTVT on Promulgation the National Technical Regulation on Automobile Tachograph
- Technical specification of digital tachograph system and mobile tracer, Transtron
- Brochure of Fuel Compass, Datatec
- The World Bank Data – Pump price for diesel fuel
- CDM Feasibility Study for Biodiesel Fuel (BDF) production from organic oils of Jatropha and usage for transportation vehicles in Vietnam, Mitsubishi UFJ Research & Consulting Co., Ltd., 2010
- Development of Biomass Energy in Vietnam, Luu Van Boi, VNU University of Science and Yasuaki Maeda, Osaka Prefecture University, May 2012
- Production of biodiesel fuels from Vietnamese Jatropha curcas oil and catfish oil by using a co-solvent technology, Luu Duc Phuong, 31/03/2015
- Introduction of Digital Tachograph for CIS Countries, the United Nations Economic Commission for Europe (UNECE), 2006
- Introduction of the Digital Tachograph (IDT) Project, European Commission, 2002
- Monitoring of the Implementation of Digital Tachograph (MIDT) Project, Confederation of Organisations in Road Transport Enforcement (CARTE), 2008

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

Please attach certificates or curricula vitae of TPE's validation team members, technical experts and internal technical reviewers.

Certificate of Appointment is attached to this report.

Lloyd's Register
LRQA

Joint Crediting Mechanism Certificate of Appointment

Title of Project: Eco-Driving by Utilizing Digital Tachograph System

We hereby certify that the following personnel have engaged in the validation process that has fully satisfied the competence requirements of the validation of the JCM project.

Name of Person	Assigned Roles
Michiaki Chiba	Team Leader
Nguyen Tri Thang	Team Member
Rama Ponnada	Technical Expert
Xianxin Yan	Technical Reviewer

Signed by

Michiaki Chiba
Climate Change Manager – Asia & Pacific
07/05/2015