JCM Verification Report Form

A. Summary of verification

A.1. General Information

Title of the project	Introduction of Energy-Efficient Air Conditioners in RICOH IMAGING PRODUCTS (Vietnam) CO., LTD.
Reference number	VN 009
Monitoring period	01/12/2018 - 31/12/2020 (2nd monitoring period)
Date of completion of the monitoring report	22/02/2022
Third-party entity (TPE)	Japan Quality Assurance Organization (JQA) (TPE-VN-002)
Project participant contracting the TPE	RICOH COMPANY, LTD.
Date of completion of this report	10/03/2022

A.2 Conclusion of verification and level of assurance

Overall verification opinion	☒ Positive ☐ Negative
☒ Unqualified opinion	Based on the process and procedure conducted, JQA provides reasonable assurance that the emission reductions for Introduction of Energy-Efficient Air Conditioners in RICOH IMAGING PRODUCTS (Vietnam) CO., LTD. ✓ Are free of material errors and are a fair representation of the GHG data and information, and ✓ Are prepared in line with the related JCM rules, procedure, guidelines, forms and other relevant documents
(If overall verification opinion is negative, please check below and state its reasons.) ☐ Qualified Opinion ☐ Adverse opinion ☐ Disclaimer	<State the reasons>

A.3. Overview of the verification results

Item	Verification requirements	No CAR or CL remaining
The project implementation with	The TPE determines the conformity of the actual project and its operation with the eligibility criteria of	☒

Item	Verification requirements	No CAR or CL remaining
the eligibility criteria of the applied methodology	the applied methodology.	
The project implementation against the registered PDD or any approved revised PDD	The TPE assesses the status of the actual project and its operation with the registered/validated PDD or any approved revised PDD.	☒
Calibration frequency and correction of measured values with related requirements	If monitoring Option C is selected, the TPE determines whether the measuring equipments have been properly calibrated in line with the monitoring plan and whether measured values are properly corrected, where necessary, to calculate emission reductions in line with the PDD and Monitoring Guidelines.	☒
Data and calculation of GHG emission reductions	The TPE assesses the data and calculations of GHG emission reductions achieved by/resulting from the project by the application of the selected approved methodology.	☒
Avoidance of double registration	The TPE determines whether the project is not registered under other international climate mitigation mechanisms.	☒
Post registration changes	The TPE determines whether there are post registration changes from the registered PDD and/or methodology which prevent the use of the applied methodology.	☒

Authorised signatory: Mr. ☒ Ms. ☐

Last name: Asada First name: Sumio

Title: Senior Executive

Specimen signature: Date: 10/03/2022

[redacted]

B. Verification team and other experts

	Name	Company	Function*	Scheme competence*	Technical competence*	On-site visit
Mr. ☒ Ms. ☐	Tadashi Yoshida	JQA	Team leader	☒	Authorized	☐
Mr. ☒ Ms. ☐	Hiroshi Motokawa	JQA	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 verification, findings and conclusions based on reporting requirements

C.1. Compliance of the project implementation and operation with the eligibility criteria of the applied methodology

<Means of verification>

The project was registered as a JCM project on 15/08/2018, which applied JCM approved methodology VN_AM006_ver01.0 "Introduction of air conditioning system equipped with inverters" under the scheme of Joint Crediting Mechanism between Socialist Republic of Vietnam and Japan. The project participants (PPs) are RICOH IMAGING PRODUCTS (Vietnam) CO., LTD. from Socialist Republic of Vietnam and RICOH COMPANY, LTD. from Japan.

The purpose of the registered project is to reduce energy consumption of the air conditioning system at the factory of RICOH IMAGING PRODUCTS (Vietnam) CO., LTD. in Hanoi by replacing the existing air conditioners with higher energy-efficient ones equipped with inverter produced by Daikin Industries, Ltd.

The JCM website and Validation Report indicate that the starting date of the project operation is 06/12/2017 and its expected operational lifetime is 9 years. The second monitoring period is between 01/12/2018 and 31/12/2020.

The verification team has assessed through the review of the sufficient documents and on-line interview with the PPs that physical features of the project are in place and that the PPs have operated the project as per the eligibility criteria of the applied methodology during the second monitoring period. The verification team has conducted no on-site visit for the verification of the second monitoring period. The reason for this was that the following

evidences sufficient for the verification were obtained:

- Information on the project equipment and technology;
- Photos of the project equipment taken during the second monitoring period;
- Information of project operation and monitoring, and
- Confirmation Letter dated 13/01/2022, provided by the PPs, stating that there are no changes in all project equipment and monitoring plan during the second monitoring period.

The assessment results regarding the eligibility criteria are summarized as below:

Criterion 1

Air-conditioning system with inverter is newly installed or installed to replace existing non-inverter air conditioning system.

Through the review of supporting documents and the 1st Verification Report, the project information of Criterion 1 in the PDD is confirmed as follows:

- The existing non-inverter air-conditioning units are replaced by the air-conditioning system equipped with inverter.
- The project air-conditioning units are products of Daikin Industries, Ltd. and their codes of outdoor units are as follows:

  RXQ20THY1
  RXQ50THY1
  RXQ12TAHYM
  RXQ50TAHYM
  RXQ16TAHYM
  RXYQ12TAHY1
  RXQ32TAHYM

Hence, it is concluded that the project meets Criterion 1 with a satisfactory result.

Criterion 2

Cooling capacity of project air conditioning system is more than or equal to 14kW.

Through the review of supporting documents and the 1st Verification Report, the project information of Criterion 2 in the PDD is confirmed as follows:

- The cooling capacity of all project air-conditioning units are more than or equal to 14 kW as shown in the table below:

Unit code	Cooling capacity (kW)
RXQ20THY1	54.4
RXQ50THY1	140
RXQ12TAHYM	32
RXQ50TAHYM	140
RXQ16TAHYM	44.8
RXYQ12TAHY1	32
RXQ32TAHYM	89.4

Hence, it is concluded that the project meets Criterion 2 with a satisfactory result.

Criterion 3

COP of project air-conditioning system has a COP value higher than that of the value indicated in the table below.

COP for Reference Air-Conditioning System ($COP_{RE,i}$)

Cooling Capacity [kW]	Reference COP
$14 \leq x < 28$	2.97
$28 \leq x < 42$	2.94
$42 \leq x < 56$	2.91
$56 \leq x$	2.56

Through the review of supporting documents and the 1st Verification Report, the project information of Criterion 3 in the PDD is confirmed as follows:

- The COP values of all project air-conditioning units are higher than the reference COP values given in Criterion 3 as shown in the table below:

Unit code	Cooling capacity (kW)	Reference COP	Project COP
RXQ20THY1	54.4	2.91	4.35
RXQ50THY1	140	2.56	3.38
RXQ12TAHYM	32	2.94	4.40
RXQ50TAHYM	140	2.56	3.38
RXQ16TAHYM	44.8	2.91	4.30
RXYQ12TAHY1	32	2.94	4.40
RXQ32TAHYM	89.4	2.56	3.92

Hence, it is concluded that the project meets Criterion 3 with a satisfactory result.

Criterion 4

Ozone Depletion Potential (ODP) of the refrigerant used for project air conditioning system is zero.

Through the review of supporting documents, Validation Report and the 1st Verification Report, the project information of Criterion 4 in the PDD is confirmed as follows:

- The refrigerant R-410A, whose ODP is zero, is used for all project air-conditioning units installed.

Hence, it is concluded that the project meets Criterion 4 with a satisfactory result.

Criterion 5

Plans to prevent release of refrigerants into the atmosphere at the time of air conditioning system removal are prepared for both project air conditioning system and the existing air conditioning system replaced by the project. In the case of replacing existing air conditioning system by project air conditioning system, execution of the prevention plan is checked at the time of verification, e.g. re-use of the refrigerant, in order to confirm that refrigerant used for the existing air conditioning system removed by the project is not released to the air.

Through the review of supporting documents, Validation Report and the 1st Verification Report, the project information of Criterion 5 in the PDD is confirmed as follows:

- According to the plan to prevent release of refrigerants into the atmosphere, the refrigerant R22 from the existing air-conditioning units was recovered by North Star Construction and HK Construction during the period of 2015-2017 and stored in the containers.
- The re-use or selling of the refrigerant R22 stored in the containers (ca. 55 kg) has been completed by 02/12/2017, *i.e.*, before the starting date of project operation, which is confirmed by Warranty, Maintenance Work Report issued by North Star Construction and HK Construction.
- However, it is found that some of the refrigerant R22 was mistakenly released to the atmosphere during the recovery of the refrigerant from four existing air-conditioning units in FY 2016. The cause of the accident has been investigated and the measures to prevent the reoccurrence of such accident have been established by RICOH COMPANY, LTD. in May 2017.

Hence, it is concluded that the project meets Criterion 5 with an acceptable result.

<Findings>

No issue was identified to the requirement.

<Conclusion based on reporting requirements>

The verification team concludes that the project implementation and the operation complied with all eligibility criteria of the applied methodology VN_AM006 during the second

monitoring period.

C.2. Assessment of the project implementation against the registered PDD or any approved revised PDD

<Means of verification>

The verification team has assessed the project implementation against the registered PDD through the review of the relevant documents and on-line interviews with the PPs. The project is implemented by RICOH IMAGING PRODUCTS (Vietnam) CO., LTD. from Socialist Republic of Vietnam and RICOH COMPANY, LTD. from Japan.

The assessment results are summarized as follows;

[Physical features of the project]

It is confirmed through the review of relevant documents including photos of the project air conditioners and the interview with the PPs that the existing air-conditioning units in the factory of RICOH IMAGING PRODUCTS (Vietnam) CO., LTD. were replaced by higher energy-efficient air-conditioning units with inverter technology which are produced by Daikin Industries, Ltd. The newly installed project air-conditioning system consists of 8 outdoor units (Total rated power consumption: 153.42 kW) and 15 indoor units (Total rated power consumption: 32.049 kW). The starting date of project operation was 06/12/2017, which is the actual starting date of monitoring activities.

The installation of the project equipment complies with the description of the registered PDD, and the project has been implemented and operated in accordance with the PDD during the second monitoring period. Confirmation Letter dated 13/01/2022, provided by the PPs, states that there are no changes from the registered PDD in all project equipment and monitoring plan during the second monitoring period. It is therefore confirmed that the physical features of the project in the registered PDD are in place and the PPs have operated the project as per the registered PDD.

[Monitoring points]

Two monitoring parameters described below are measured by measuring equipment in accordance with the monitoring plan.

1. $EC_{PJ,i,outdoor,p}$: Electricity consumption of outdoor unit of project air-conditioning system *i* during the period *p* [MWh/p]
2. $EC_{PJ,i,indoor,p}$: Total electricity consumption of indoor units of project air-conditioning system during the period *p* [MWh/p]

The electricity meter (KW1M Eco-power meter made by Panasonic Industrial Devices

SUNX Tatsuno Co., Ltd.) is located at each outdoor unit and measures electricity consumption and operating hours of individual outdoor unit. Total electricity consumption of indoor units ($EC_{PJ,i,indoor,p}$) is calculated by using Method 3 in the registered monitoring plan, *i.e.*, by multiplying total rated power consumption of indoor unit(s) connected outdoor unit *i* by operating hours of outdoor unit *i*. The electricity consumption and operating hours of outdoor unit are continuously monitored by multifunction Eco-power meter and automatically transmitted to the server for recording, and then double-checked by a responsible staff on a monthly basis to prevent the missing of data. Thus, it is confirmed through the review of relevant documents and the interview with the PPs that the monitoring points for electricity consumption and operating hours of outdoor units are in line with the registered PDD.

[Monitoring structure]

The monitoring structure is established and the roles and responsibilities of the personnel are consistent with the description in Monitoring Structure Sheet. The staff training for operation, monitoring and reporting has been conducted during the second monitoring period.

It is confirmed through the review of relevant documents and the interview with the PPs that the monitoring activity has been appropriately implemented during the second monitoring period, in line with the monitoring plan of the registered PDD.

<Findings>

No issue was identified to the requirement.

<Conclusion based on reporting requirements>

The verification team concludes that the project has been implemented and operated in accordance with the registered PDD and monitoring plan during the second monitoring period, and no post-registration changes are identified from the description of the registered PDD.

C.3. Compliance of calibration frequency and correction of measured values with related requirements

<Means of verification>

The electricity consumption of the project air-conditioning system (Outdoor and indoor units) is measured by multifunction Eco-power meter (Accuracy: ± 2.0% FS). It is confirmed through the review of supporting documents that the meter was calibrated by the manufacturer at the time of shipment from the factory on 25/05/2015, in accordance with the internal regulation based on JIS C 1216-1. Hence, the measured values during the second monitoring period are applied in the calculation of emission reductions without correction.

<Findings>

No issue was identified to the requirement.

<Conclusion based on reporting requirements>

The verification team concludes that the measuring equipment was calibrated by the manufacturer at the time of shipment in accordance with the internal regulation based on JIS C 1216-1. No correction of the measured values during the second monitoring period is required in the calculation of emission reductions.

C.4. Assessment of data and calculation of GHG emission reductions

<Means of verification>

The verification team has assessed the data and calculation of GHG emission reductions achieved by the project activity as follows:

(a) A confirmation that appropriate Monitoring Report Sheet of the applied methodology has been used;

Through the review of the monitoring reports for the project which are titled as JCM_ VN_AM006_ver01.0_RICOH_MRS_2018.xlsx, JCM_VN_AM006_ver01.0_RICOH_ MRS_2019.xlsx and JCM_VN_AM006_ver01.0_RICOH_MRS_2020.xlsx, it is confirmed that the Monitoring Report Sheets (MRS(input), MRS(input_each system) and MRS(calc_process) of applied methodology VN_AM006 are appropriately used.

(b) A confirmation that a set of data for the specified monitoring period was complete, or a list of actions taken by the TPE in line with the guidance from the Joint Committee when partial data are unavailable;

Monitoring Report Sheet (MRS) provided by the PPs contains a complete set of the monitored data on the amounts of electricity consumption of outdoor unit ($EC_{PJ,i,outdoor,p}$) and total electricity consumption of indoor units ($EC_{PJ,indoor,p}$) during the second monitoring period. The monitored data are separately provided for each year of 2018, 2019 and 2020 by use of Monitoring Spreadsheet JCM_VN_AM006_ ver01.0. The quantity of total electricity consumption of indoor units ($EC_{PJ,indoor,p}$) is calculated by using Method 3 in the registered monitoring plan, *i.e.,* by multiplying total rated power consumption of indoor unit(s) connected outdoor unit *i* by operating hours of outdoor unit *i*. The operating hours of outdoor unit *i* during the second monitoring period is provided in the separated data sheets.

It is confirmed through the review of these monitored data that the electricity consumption and operating hours of outdoor units are fully provided for the second monitoring period between 01/12/2018 and 31/12/2020.

(c) A description of how the TPE checked reported data;

The verification team has reviewed the correctness of the monitored data on the electricity consumption of outdoor units and indoor units given in the MRS for 2018, 2019 and 2020, as shown in Table 1. It is confirmed through the cross-check of the monitored data in the MRS with their monthly data that the values of electricity consumption of outdoor units and indoor units are fully consistent with the sum of their monthly data, and reference emissions, project emissions and emission reductions in the MRS(calc_process) are correctly calculated.

Table 1 Monitored values of electricity consumption of outdoor units and indoor units during the second monitoring period of 2018-2020

Parameters	Monitored values (MWh/p)	Method to check values in the monitoring report with sources
	(2018)	The values of electricity consumption of outdoor units and indoor units in the MRS are checked with their monthly data which aggregates the daily data downloaded from the server.
$EC_{PJ,i,outdoor,p}$	15.07	
$EC_{PJ,indoor,p}$	8.05	
	(2019)	
$EC_{PJ,i,outdoor,p}$	327.05	
$EC_{PJ,indoor,p}$	99.61	
	(2020)	
$EC_{PJ,i,outdoor,p}$	309.12	
$EC_{PJ,indoor,p}$	72.27	

(d) An opinion as to whether assumptions, emission factors, default values, and other reference values that were applied in the calculation have been justified;

Through the review of the MRS, it is confirmed that the assumptions used in the calculation of emission reductions have been justified. Furthermore, it is confirmed that CO_2 emission factor for consumed electricity (EF_{elec}), COP values for reference air conditioning system ($COP_{RE,i}$) and for the outdoor unit of project air conditioning system ($COP_{PJ,i,outdoor}$) determined at the time of validation are correctly applied in the calculation of emission reductions.

Through the review of the MRS and Confirmation Letter provided by the PPs, it is confirmed that the amount of emission reductions in December 2018 is calculated as -1.5 tCO_2, but it is automatically rounded down to -1 tCO_2 by the Excel function on MRS(input). Hence, the value of emission reductions in 2018 is conservatively rounded up to -2 tCO_2 by the PPs.

<Findings>

No issue was identified to the requirement.

<Conclusion based on reporting requirements>

The verification team concludes that the monitored data and *ex-ante* fixed values are

correctly applied in the calculation of emission reductions achieved during the second monitoring period, in accordance with the applied methodology VN_AM006 and the monitoring plan of the registered PDD.

C.5. Assessment of avoidance of double registration

<Means of verification>

The verification team received a written confirmation dated 13/01/2022 from the PPs which is signed by the primary authorized signatory of RICOH COMPANY, LTD. It declares that the registered JCM project is not registered under any international climate mitigation mechanisms other than the JCM. Therefore, the project will not result in double counting of GHG emission reductions.

It is confirmed through the review of the written confirmation, the check of the relevant website and the interview with the PPs that the JCM project is not registered under any international climate mitigation mechanisms other than the JCM.

<Findings>

No issue was identified to the requirement.

<Conclusion based on reporting requirements>

The verification team concludes that the project is not registered under other international climate mitigation mechanisms.

C.6. Post registration changes

<Means of verification>

It is confirmed through the review of Confirmation Letter dated 13/01/2022 provided by the PPs, photos of the project facilities and monitoring equipment that all project equipment and monitoring plan have no changes from the registered PDD and/or methodology during the second monitoring period.

<Findings>

No issue was identified to the requirement.

<Conclusion based on reporting requirements>

The verification team concludes that the project is not changed from the registered PDD and/or methodology.

D. Assessment of response to remaining issues

An assessment of response to the remaining issues including FARs from the validation and/or previous verification period, if appropriate

No issues including FAR from the validation and the previous verification are remained.

E. Verified amount of emission reductions achieved

Year	Verified Reference Emissions (tCO_2e)	Verified Project Emissions (tCO_2e)	Verified Emission Reductions (tCO_2e)
2013			
2014			
2015			
2016			
2017			
2018	17.4	18.8	- 2
2019	377.2	347.9	29
2020	350.0	311.0	39
Total (tCO_2e)			66

F. List of interviewees and documents received

F.1. List of interviewees

- Mr.Naito Yasunori Senior Specialist, ESG Strategy Division, RICOH COMPANY, LTD.
- Ms. Chie Kobatake Specialist, Professional Services Div., Environmental Evolution Dept., RICOH COMPANY, LTD.
- Mr.Tran Quynh Trang Manager, Administration Department, RICOH IMAGING PRODUCTS (Vietnam) CO., LTD.

F.2. List of documents received

1. Monitoring Report Sheet, JCM_VN_AM006_ver01.0_RICOH_MRS_2018.xlsx, JCM_VN_AM006_ver01.0_RICOH_MRS_2019.xlsx and JCM_VN_AM006_ver01.0_RICOH_MRS_2020 for the second monitoring period
2. Daily data of electricity consumption and operating hours of outdoor unit of project air-conditioning system during the second monitoring period

3. Monthly data of electricity consumption of outdoor unit of project air-conditioning system during the second monitoring period
4. Monthly data of operating hours of outdoor unit, rated power consumption and electricity consumption of indoor units of project air-conditioning system during the second monitoring period
5. Registered PDD, ver.4.0, submitted for PRC on 11/10/2019, Initial registration date: 15/08/2018
6. Validation Report, 21/02/2018, prepared by JQA
7. Monitoring Report Sheets submitted for the first monitoring period
8. Verification Report for the first monitoring period, 26/03/2019, prepared by LRQA
9. MoC Statement Form ANNEX 1, submitted for JC, dated 19/01/2022
10. Approved Methodology JCM_VN_AM006_ver01.0, 20/10/2016, JC5, Annex 7
11. Monitoring Spreadsheet JCM_VN_AM006_ver01.0.xlsx
12. JCM Glossary of Terms (JCM_VN_Glossary_ver01.0)
13. JCM Project Cycle Procedure (JCM_VN_PCP_ver04.0)
14. JCM Modalities of Communication Statement Form (JCM_VN_F_MoC_ver02.0)
15. JCM Guidelines for Developing Project Design Document and Monitoring Report (JCM_VN_GL_PDD_MR_ver02.0)
16. JCM Guidelines for Validation and Verification (JCM_VN_GL_VV_ver01.0)
17. JCM Verification Report Form (JCM_VN_F_Vrf_Rep_ver02.0)
18. Layout drawing of project equipment (8 outdoor units and 15 indoor units) installed at the project site
19. Catalogue and specification of various types of outdoor units and indoor units installed at the project site, including cooling capacity and COP value
20. List of project outdoor and indoor air-conditioning units installed at the project site
21. Photos of all types of outdoor units and electricity meters installed at the project site
22. Safety Data sheet of R-410A refrigerant, including ODP value

23-1. Confirmation Letter on the recovery of refrigerant R22 from the existing air conditioner, issued by Northstar Construction on 16/05/2017

23-2. Warranty, Maintenance Work Report for the recovery and re-use of refrigerant R22 From the existing air conditioner, issued by Northstar Construction and HK Construction

24. Recovery procedures of refrigerant from air conditioner
25. Photos of the recovery and storage of refrigerant R22 from the existing air conditioner
26. Records on the recovery and re-use of refrigerant R22 recovered from the existing air conditioner at the project site during 2015-2017 with certificates
27. Report of cause and measures on the release accident happened during the recovery of

refrigerant R22 from the existing air conditioning units, dated 16/05/2017

28. Maintenance records on the project air conditioning units in 2019 and 2020
29. Electricity line diagram of the project air conditioning system installed at the project site
30. Catalogue and specification of KW1M Eco-power meter (Electricity meter), made by Panasonic Industrial Devices SUNX Co., Ltd.
31. Certificate of shipping inspection of KW1M Eco-power meter dated 25/05/2015
32. Internal regulation based on JIS C 1216-1 for KW1M Eco-power meter, issued by Panasonic Industrial Devices SUNX Co., Ltd. dated 04/04/2016
33. Latest grid emission factor (0.815 tCO_2/MWh) issued by Ministry of Natural Resources and Environment of Vietnam (MONRE), Vietnamese DNA for CDM
34. *Ex-ante* calculation of CO_2 emission reductions for the registered project
35. Detailed procedures of monitoring activity and reporting
36. Confirmation letter regarding no changes in project equipment and monitoring plan during the second monitoring period, dated 13/01/2022
37. Declaration of avoidance of double registration, dated 13/01/2022
38. Confirmation Letter on conservative calculation of emission reductions in 2018

Annex Certificates or curricula vitae of TPE's verification 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.

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 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: Mr. Hiroshi Motokawa

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	2014/12/22
TA 5.1. Chemical industry	-
TA 10.1. Fugitive emissions from oil and gas	-
TA 13.1. Solid waste and wastewater	2014/12/22
TA 14.1. Afforestation and reforestation	-