JCM Sustainable Development and Safeguards Assessment Report

Project description	
Title	Installation of Energy-efficient Refrigerators Using Natural Refrigerant at Distribution Centre of Better Foods Co., Ltd.
Project participant (Thai)	Better Foods Co., Ltd.
Project participant (Japanese)	KANEMATSU CORPORATON
Project location	Chong Sarika, Phatthana Nikhom District, Lopburi Province, Kingdom of Thailand
Latitude, longitude	14°47'07.6"N 100°55'02.3"E
Project status	Status on 4 February 2025 ☐not started yet ☐expected to complete in Month /Year ☒ operated since 1 June 2017

Report description		
Date of report completion	05/02/2025	
Version	Version 01	
Corresponding author	Name	Norio ASAMI
	Title	General Manager
	Organization	KANEMATSU CORPORATON
	Telephone	[redacted]
	E-mail	[redacted]

Note:

- Related figures, documents, evidence related to the description may be attached as attachment.
- In the case where there is any other relevant issue that needs to be considered, it is be specified in the last row of each area of assessment.

Certification letter

05/02/2025

I, the undersigned, hereby certify that KANEMATSU CORPORATION is the author of the "Sustainable Development and Safeguards Assessment Report" of the project titled Installation of Energy-efficient Refrigerators Using Natural Refrigerant at Distribution Centre of Better Foods Co., Ltd. developed by KANEMATSU CORPORATION and Better Foods Co., Ltd., located at Chong Sarika, Phatthana Nikhom District, Lopburi Province, Kingdom of Thailand.

The report was prepared by the team members as follows:

No.	Name	Position	Signature
1	Norio ASAMI	General Manager, Plant and Ships Dept.	[redacted]
2	Masafumi TOMINAGA	Person in charge, Industrial Machinery & Plant Sec., Plant and Ships Dept.	

Signature [redacted]

(Norio ASAMI)

Position General Manager

Seal (if any)

Part 1: General information of the project area before project implementation

Provide baseline information describing the conditions before project implementation. This data is essential for assessing the project's environmental, social, and economic impacts. Ensure the details are accurate and comprehensive to support a thorough evaluation.

Area of Assessment	Description
1. Environment and natural resources	
1.1 Air pollution	The project is located in the government complex which has no point source of air pollution found in the area. The ambient air quality consistently met the standards, except for occasional PM 2.5 levels exceeding the standards during the dry season.
1.2 Water pollution	No surface water and ground water pollution problem were reported in the area.
1.3 Soil pollution	No soil pollution was reported in the area.
1.4 Noise pollution	No point sources of noise pollution were found in the area.
1.5 Odor pollution	No odor was reported in the area.
1.6 Water consumption	The project area is a government complex surrounded by commercial buildings with prevalent consumption of tap water. No surface or underground water is used in the area.
1.7 Solid waste/municipal solid waste	The Local Government Agency regularly collects solid waste from the factory buildings. So, there is no leftover problem in the area.
1.8 Hazardous waste/infectious waste/electronic waste	No pollution from hazardous waste / infectious waste / electronic waste was reported in the area.
1.9 Energy (i.e. Wasted Energy, Renewable Energy)	The factory uses electricity from power grid and solar power.
1.10 Land Use	The factory is surrounded by factory and agricultural area.
1.11 Biodiversity	Biodiversity was not relevant in the industrial estate.
1.12 Wild animal/ Aquatic ecosystem	No wild animal or aquatic ecosystem is found in the area.
1.13 Other (Please specify...)	-
2. Society	
2.1 Socio-cultural characteristics	Socio-cultural characteristics are those of a typical Lopburi residential area. The society comprises largely of working-class who engage in trade and official work. With employment opportunities arising from urban

Area of Assessment	Description
	development, residents represent a mixture of locals and trans-local and foreign immigrants.
2.2 Health and safety	There is no major concern in terms of health and safety in the area.
2.3 Traditions, cultures and/or valuable places worthy of conservation	The tradition and cultural values of the people in the area are those commonly found in the central region of Thailand. There are no distinctive places of high conservation values.
2.4 Race, religion, and ethnic group	The majority of population in the area are of Thai origin who practice Buddhism. There is a small group informal foreign workers from neighboring countries.
2.5 Transportation	Primary mode of transportation in the area is private vehicles (cars, trucks and motorbikes). There is also a use local public transport such as train, buses, vans.
2.6 Other (Please specify...)	-
3. Economic	
3.1 Overall local economy (i.e. income, expenditure, etc.)	The local economy in the area is largely driven by the manufacturing sector, Agriculture and livestock.
3.2 Employment/Career	Officials, merchants, factory workers, farmers
3.3 Major agricultural activity in the area	The main agricultural activities in the area include cassava, sugarcane and animal feed corn.
3.4 Major industry in the area	There are some factories include frozen food product, Slaughterhouses, warehouse
3.5 Major service sector in the area	Hospitality (particularly restaurants) and retail trade are the main service sector in the area.
3.6 Basic infrastructure (i.e. road, school, etc.)	The basic infrastructure in the area included transportation (road network), utilities (electricity, water supply, waste management), as well as telecommunications.
3.7 Other (Please specify...)	-

**Project Participant explains in detail of provenance and importance of issue consider about before project implement and specify if the project is rightful/environmental law, social, and economy. To have Negative impact assessment (Do-no-net-harm) with supporting documents.*

Part 2 Sustainable Development Goals

2.1 Sustainable Development Contributions Assessment

Please mark ✓ in ☐ to identify the contributions of the proposed project to specific SDG. The project is required to contribute to ***at least two SDGs, in addition to*** *SDG13: Climate Action.*

Project Contributions to SDGs	Indicator (Please specify)	Description of Indicator
☐ SDG 1: No Poverty		
☐ SDG 2: Zero Hunger		
☐ SDG 3: Good Health and Well-being		
☐ SDG 4: Quality Education		
☐ SDG 5: Gender Equality		
☐ SDG 6: Clean Water and Sanitation		
☐ SDG 7: Affordable and Clean Energy		
■ SDG 8: Decent Work and Economic Growth	Amount of energy saved (Unit: MWh)	Energy savings can be achieved by introducing refrigeration equipment with higher performance than conventional technology. This reduces costs and contributes to economic output.
☐ SDG 9: Industry, Innovation and Infrastructure		
☐ SDG 10: Reduced Inequality		
☐ SDG 11: Sustainable Cities and Communities		

Project Contributions to SDGs	Indicator (Please specify)	Description of Indicator
☐ SDG 12: Responsible Consumption and Production		
■ SDG 13: Climate Action		
☐ SDG 14: Life Below Water		
☐ SDG 15: Life on Land		
☐ SDG 16: Peace and Justice Strong Institutions		
☑ SDG 17: Partnerships to achieve the Goal	Last annual progress report submission date	Operational continuity of the JCM project, which mobilizes additional financial resources, disseminates low-carbon technologies, and reduces GHG emissions in Thailand

**Project Participant provides the description for each indicator of the selected SDGs and presents currently available datasets along with supporting documents.*

2.2 Details on Monitoring Parameters for Demonstrating SDG Contributions

Provide details on how to monitor the indicators identified in Section 2.1.
(Tables can be added based on the number of selected SDGs.)

SDG Number	SDG 8
SDG Target	Decent Work and Economic Growth
Variable or Indicator	Amount of generated electricity (Unit: kWh)
Duration/Frequency	Monthly
Method/Tool	Power meter
Responsible person	Engineer Staff of Better Foods Co., Ltd.,

SDG Number	SDG 17
SDG Target	Partnerships to achieve the goal
Variable or Indicator	Last progress report submission
Duration/Frequency	Yearly

Method/Tool	-
Responsible person	Norio Asami

Part 3 Do no net harm

3.1 'Do no net harm' Risk Assessment and Safeguards

Specify impacts and mitigation plans to mitigate negative impacts.

Potential Impact of Project Activity	Severity Level of Impact				Description of Impact	Action Plan to mitigate harmful impacts
	None	Low	Moderate	High		
1. Impacts on Environment and Natural Resources						
1.1 Physical resources						
Water pollution	✓					
Soil pollution	✓					
Air pollution	✓					
Noise pollution	✓					
Odor pollution	✓					
Soil erosion, coastal/river erosion	✓					
Vulnerability to natural disaster	✓					
Other	✓					
1.2 Waste management						
Increase in solid waste/municipal solid waste	✓					

Potential Impact of Project Activity	Severity Level of Impact				Description of Impact	Action Plan to mitigate harmful impacts
	None	Low	Moderate	High		
Increase in hazardous waste such as waste contaminated with oil, chemicals and used oil etc.	✓				Refrigeration units use ammonia and CO2 refrigerants and lubricants, which become hazardous waste at the end of their useful life.	The project hires a company to manage the transportation and disposal of the waste lubricant oil and ammonia and CO2 refrigerants.
Increase in infectious waste	✓					
Increase in electronic waste	✓					
Other	✓					
1.3 Biological resources						
Impacts on forest areas and land-use change	✓					
Loss of land and wildlife ecosystem	✓					
Loss of water resources and aquatic ecosystem	✓					
Foraging	✓					
Food	✓					
Other	✓					
1.4 Human livelihood						

Potential Impact of Project Activity	Severity Level of Impact				Description of Impact	Action Plan to mitigate harmful impacts
	None	Low	Moderate	High		
Water drainage or waterway diversion	✓					
Change in water consumption	✓					
Change in land ownership	✓					
Other	✓					
2. Social impacts						
Public security such as increase in crime risks	✓					
Health impacts		✓			Inhalation of high concentrations of ammonia can be lethal. Safety measures against ammonia refrigerants are therefore necessary. Frequency: as a rule, it will not occur if regular control is not neglected.	Regular maintenance to prevent the occurrence of refrigerant leaks. ✓Visual inspection of equipment. ✓Checking for ammonia odour As measures in case of leakage. ✓Installation of ammonia abatement equipment and gas masks.
Relocation or temporary/permanent loss of land	✓					
Loss of housing	✓					

Potential Impact of Project Activity	Severity Level of Impact				Description of Impact	Action Plan to mitigate harmful impacts
	None	Low	Moderate	High		
Impact on public utilities such as electricity, telephone service etc.	✓					
Impact on traffic	✓					
Community conflict	✓					
Employment and labor	✓					
Impact on people of certain race, religion and ethnic groups	✓					
Damage to areas of high conservation value, such as religious sites, historic sites, monuments, important places of the community etc.	✓					
Impact on human rights such as education, freedom of thought, religion etc.	✓					
Gender inequality such as in employment opportunities, salary, promotion, benefits, termination of contract etc.	✓					

Potential Impact of Project Activity	Severity Level of Impact				Description of Impact	Action Plan to mitigate harmful impacts
	None	Low	Moderate	High		
Other	✓					
3. Economic impacts						
Increase unemployment /loss of income of people in local communities	✓					
Other	✓					

Criteria for assessing the level of impact severity

1. None: The proposed activity has no direct/indirect impacts on the environment, society and economy.

2. Low: The proposed activity causes some changes to the existing conditions but has no implication on the quality of the environment, society and economy. The impact is short-lived and temporary, and the extent of the affected area is not large (1km perimeter).

3. Moderate: The proposed activity causes some changes to the existing conditions and has implications on values or qualities of the environment, society and economy. The impact is short-lived and temporary. The extent of the affected area is large but confined to the related area (2km perimeter).

4. High: The proposed activity causes some changes to the existing conditions and has implications on value or quality of the environment, society, economy, and potentially the ecosystem. The impact is permanent and the extent of the affected area id extensive (3km perimeter).

3.2 Details on Monitoring Parameters for Ensuring No Negative Impacts

Provide details on how to monitor the impacts identified in Section 3.1.

(Tables can be added based on the number of negative impacts identified)

Category of negative impact	Impacts on Environment and Natural Resources
Subcategory of negative impact	Health impacts
Vulnerable group	Maintenance worker
Possible negative impact	Air pollutants from ammonia refrigerant leaks in refrigeration units.
Parameter/indicator	NH3 <50 ppm For mechanical room ventilation systems, a setting of 25 ppm or less is usually recommended.
Reference	Thai Ministry of Labor. Ministerial Regulations on Standards for Administration, Management and Operation of Safety, Occupational Health and Working Environment Regarding Hazardous Chemicals B.E. 2013 & Announcement of the Department of Labor Protection and Welfare on the concentration limits of hazardous chemicals B.E. 2017
Duration/frequency	Irregular
Method/Tools	Refrigerant leak detection by sensors
Responsible person	Engineer Staff of Better Foods Co., Ltd.,
Expected outcome	Ammonia concentrations do not exceed the 25 ppm or 50 ppm standards.

Category of negative impact	Impacts on Environment and Natural Resources
Subcategory of negative impact	Increase in hazardous waste
Vulnerable group	Maintenance worker
Possible negative impact	Proper treatment of waste oil from refrigeration equipment
Parameter/indicator	Waste oil ≥ 200 Liter For waste oil from maintenance process send to disposed of with an agency authorized by law.
Reference	Ministry of Industry Announcement on Necessary or Unused Materials B.E. 2023
Duration/frequency	Irregular

Method/Tools	Not exceeding parameter reference values
Responsible person	Engineer Staff of Better Foods Co., Ltd.,
Expected outcome	If it is within the standard values, it can be used without problems.