JCM Sustainable Development and Safeguards Assessment Report

Project description	
Title	Introduction of 0.8MW Solar Power System and High Efficiency Refrigerator to Food Factory
Project participant (Thai)	Thai Delmar Co., Ltd.
Project participant (Japanese)	Kanematsu KGK Corp.
Project location	88/8 Asia Industrial Estate Suvarnabhumi, Moo.4, Soi Asia Avenue 2, Tumbon Klong Suan, Amphoe Bang Bo, Samutprakarn 10560
Latitude, longitude	N 13° 40' 2.32" E 100° 54' 24.27"
Project status	Operated since 30/06/2020

Report description		
Date of report completion	May 15th,2025	
Version	Ver.1.0	
Corresponding author	Name	Jun Nagawa
	Title	GX Sales Dept.
	Organization	Kanematsu KGK Corp.
	Telephone	[redacted]
	E-mail	

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

15/05/2025

I, the undersigned, hereby certify that JUN NAGAWA is the author of the “Sustainable Development and Safeguards Assessment Report ” of the project titled “Introduction of 0.8MW Solar Power System and High Efficiency Refrigerator to Food Factory”developed by Thai Delmar Co.,Ltd.located at 88/8 Asia Industrial Estate Suvarnabhumi, Moo.4,Soi Asia Avenue 2 ,Tumbon Klong Suan, Amphoe Bang Bo, Samutprakarn 10560.

The report was prepared by the team members as follows:

No.	Name	Position	Signature
1	Jun Nagawa	General Manager	[redacted]
2	Kenya Maekawa	Staff Member	
3			

Signature [redacted]

(JUN NAGAWA)

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 inside of Asia Industrial Estate Suvarnabhumi. No air pollution was found in this area.
1.2 Water pollution	No surface water and ground water pollution were found in the area.
1.3 Soil pollution	No soil pollution was found in the area.
1.4 Noise pollution	No point source of noise pollution were found in the area.
1.5 Odor pollution	No odor was reported in the area.
1.6 Water consumption	Industrial water was consumed within the capacity of water supply at the industrial estate.
1.7 Solid waste/municipal solid waste	The industrial estate regularly collected industrial solid waste from the factories, so there is no leftover waste in this area.
1.8 Hazardous waste/infectious waste/electronic waste	No pollution from hazardous waste/infectious waste/electronic waste was found in the area.
1.9 Energy (i.e. Wasted Energy, Renewable Energy)	The factory electricity used from the power grid.
1.10 Land Use	The project is located in food factory in the industrial estate.
1.11 Biodiversity	Biodiversity was not relevant in the industrial estate.
1.12 Wild animal/ Aquatic ecosystem	No wild animal of aquatic ecosystem was found in the area.
1.13 Other (Please specify…)	
2. Society	
2.1 Socio-cultural characteristics	Traditional agrarian families have experienced disruptions to their livelihoods due to urbanization and industrial development. This shift has necessitated diversification in income sources and adaptation to new economic realities.

Area of Assessment	Description
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	There were no distinctive places of high conservation values in this area.
2.4 Race, religion, and ethnic group	Most of the population in the area were of Thai origin who practice Buddhism.
2.5 Transportation	Primary mode of transportation in the area is private vehicles such as cars, trucks and motorbikes.
2.6 Other (Please specify…)	
3. Economic	
3.1 Overall local economy (i.e. income, expenditure, etc.)	The local economy in the area is mostly driven by the manufacturing sector.
3.2 Employment/Career	Factory workers, clerical workers
3.3 Major agricultural activity in the area	There is no significant agricultural activity in this area.
3.4 Major industry in the area	Automotive and Electronics industry.
3.5 Major service sector in the area	Automotive and logistics are the major sector in this area.
3.6 Basic infrastructure (i.e. road, school, etc.)	Well-constructed internal roads facilitated efficient transportation with the estate. Also the utilities such as electricity, gas and water are well equipped to secure environment for industrial activities.
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	Amount of generated electricity (Unit:MWh).	The project contributes to reducing fossil fuel consumption by the solar power.
☐ SDG 8: Decent Work and Economic Growth		
☐ SDG 9: Industry, Innovation and Infrastructure		
☐ SDG 10: Reduced Inequality		
☐ SDG 11: Sustainable Cities and Communities		
☐ SDG 12: Responsible Consumption and Production		
■ SDG 13: Climate Action		
☐ SDG 14: Life Below Water		

Project Contributions to SDGs	Indicator (Please specify)	Description of Indicator
☐ SDG 15: Life on Land		
☐ SDG 16: Peace and Justice Strong Institutions		
☑ SDG 17: Partnerships to achieve the Goal	Last progress report submission date	Operational continuity of the JCM projects, which mobilizes additional financial resources, disseminates low-carbon technologies, and reduces GHG 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	7
SDG Target	Affordable and clean energy
Variable or Indicator	Amount of generated electricity
Duration/Frequency	Monthly
Method/Tool	Power Meter
Responsible person	Staff of Thai Delmar Co., Ltd.

SDG Number	17
SDG Target	Partnerships to achieve the goal
Variable or Indicator	Last progress report submission date
Duration/Frequency	Yearly
Method/Tool	-
Responsible person	Staff of Kanematsu KGK Corp.

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.		✓			During maintenance or decommissioning of refrigeration systems hazardous waste such as used ammonia refrigerant and oil contaminated filters may be generated.	During every year maintenance following DIW regulation, if disposal of ammonia and oil contaminated waste occurs, licensed vendor will handle. It will be also visually confirmed that no leakage occurs during the transfer.
Increase in infectious waste	✓					
Increase in electronic waste		✓			When project will be over or damaged, there will be a waste of solar panels. Total installed solar panels are 2,430pcs.	Since solar panels contain lead and other hazardous substances, we will prioritize recycling them if suitable facilities are available. Otherwise, they will be disposed through licensed waste management companies or at controlled landfill sites with groundwater protection measures.
Other	✓					
1.3 Biological resources						
Impacts on forest areas and land-use change	✓					

Potential Impact of Project Activity	Severity Level of Impact				Description of Impact	Action Plan to mitigate harmful impacts
	None	Low	Moderate	High		
Loss of land and wildlife ecosystem	✓					
Loss of water resources and aquatic ecosystem	✓					
Foraging	✓					
Food	✓					
Other	✓					
1.4 Human livelihood						
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		✓			NH3(ammonia)leakage	Ammonia is contained in the machine room alone which are closed loop. Leak detection is

Potential Impact of Project Activity	Severity Level of Impact				Description of Impact	Action Plan to mitigate harmful impacts
	None	Low	Moderate	High		
						equipped in the system. Regular maintenance and inspection are scheduled. Equipped personnel with appropriate protective equipment such as ammonia-resistant gloves, goggles, and respirators to protect them during leak test and maintenance work.
Relocation or temporary/permanent loss of land	✓					
Loss of housing	✓					
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,	✓					

Potential Impact of Project Activity	Severity Level of Impact				Description of Impact	Action Plan to mitigate harmful impacts
	None	Low	Moderate	High		
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.	✓					
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	Social impacts
Subcategory of negative impact	Health impacts
Vulnerable group	Operators and maintenance workers
Possible negative impact	NH3(ammonia) leakage
Parameter/indicator	Ambient ammonia concentration(ppm)
Reference	Thai LAW:TLV-TWA:50PPM for 8 hour TWA, local air quality regulation. NIOSH :TLV-TWA:25PPM STEL:35ppm(15 min)
Duration/frequency	Intermittent, potential during equipment failure or maintenance work
Method/Tools	Ammonia gas detectors
Responsible person	Safety officer of Thai Delmar Co., Ltd.
Expected outcome	*Early detection and mitigation defects*

Category of negative impact	Waste management
Subcategory of negative impact	Increase in hazardous waste
Vulnerable group	Maintenance workers and waste handling contractors
Possible negative impact	Used ammonia refrigerant and oil contaminated filters may be generated during the maintenance or decommissioning
Parameter/indicator	Volume of hazardous waste
Reference	DIW regulations: Ministry of Industry Announcement on Waste and Scrap Management 2023 Effective from November 1, 2023 The main objectives of this notification are as follows: 1. Liability Assignment: Assigns responsibility from the source of waste (Waste Generator) to the waste management process

	2. Data Reporting: Requires Waste Processors to submit monthly reports on the management of raw materials and products according to the Department of Industrial Works 3. TTLC Standards: Specifies Total Threshold Limit Concentration (TTLC) standards for inorganic and organic hazardous substances 4. Management Codes: Specifies management codes related to waste management, such as code 042 for fuel blending 5. Waste Types and Categories: Specifies waste types and categories, such as paper or cardboard packaging, plastic packaging, wooden packaging, metal packaging, and composite packaging as indicated by the Department of Industrial Works For Thai Delmar has contact with Better World Green Public Company Limited to handling Hazardous waste such as Oil used, Lubricants, Contaminated Material, contaminated tank, battery, light bulb and etc.
Duration/frequency	Yearly maintenance or decommissioning
Method/Tools	Waste manifest, maintenance instruction book After approval of DIW we will transfer the waste
Responsible person	Maintenance officer of Thai Delmar Co.,Ltd.
Expected outcome	*Proper handling and disposal waste in accordance with local regulations*

Category of negative impact	Waste management
Subcategory of negative impact	Increase in electronic waste
Vulnerable group	Waste handling personnel and recycling contractors
Possible negative impact	When project will be over or damaged, 2,430pcs of solar panels may become electronic waste.

Parameter/indicator	Number of panels removed disposed.
Reference	DIW regulations on e-waste https://e-waste2.diw.go.th
Duration/frequency	End of life (typically more than 20years) ,or intermittently due to damage from extreme weather or handling
Method/Tools	DIW Form2/3 reporting DIW Form No.2 : Record in E-waste and print out to Driver sign and bring it to Waste disposal. After disposal the document will return to Thai Delmar. DIW Form No.3 : Report every year in Single Form (https://isingleform.go.th/landing) within 15 Apr.
Responsible person	Environmental officer of Thai Delmar Co., Ltd.
Expected outcome	*Proper tracking of end of life solar panels in compliance with e-waste regulations*