JCM Sustainable Development and Safeguards Assessment Report

Project description	
Title	Energy Saving for Air-Conditioning in Tire Manufacturing Factory with High Efficiency Centrifugal Chiller
Project participant (Thai)	Bridgestone Tire Manufacturing (THAILAND) Co., Ltd.
Project participant (Japanese)	INABATA & CO., LTD.
Project location	The Kingdom of Thailand Chonburi province Amata Nakorn Industrial Estate Tambol Bankao Amphur Panthong
Latitude, longitude	N 13° 26' 52.4" and E 101° 03' 11.4"
Project status	Operated since 01/02/2018

Report description		
Date of report completion	21 July 2025	
Version	01	
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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

21/July/2025

I, the undersigned, hereby certify that INABATA & CO., LTD. is the author of the "Sustainable Development and Safeguards Assessment Report" of the project titled Energy Saving for Air-Conditioning in Tire Manufacturing Factory with High Efficiency Centrifugal Chiller developed by INABATA & CO., LTD. and Bridgestone Tire Manufacturing (THAILAND) Co., Ltd. at Amata Nakorn Industrial Estate Tambol Bankao Amphur Panthong, Chonburi province, the Kingdom of Thailand.

The report was prepared by the team members as follows:

No.	Name	Position	Signature
1	Toshihiro Matsuo	Manager	[redacted]
2	Chiaki Fukuda	Administrator	
3	Rikuto Noma	Sales	

Signature [redacted]

Position

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 the operating factory in the industrial estate area where no air pollution was reported.
1.2 Water pollution	No surface water and ground water pollution problem were reported in the area.
1.3 Soil pollution	No soil pollution problem was reported in the area.
1.4 Noise pollution	No point sources of noise pollution were reported in the area.
1.5 Odor pollution	No odor was reported in the area
1.6 Water consumption	The project is located inside the operating factory in the industrial estate area where no surface or underground water is used in the area.
1.7 Solid waste/municipal solid waste	The project is located inside the operating factory in the industrial estate area so there is no leftover problem in the area.
1.8 Hazardous waste/infectious waste/electronic waste	No pollution from hazardous waste/infectious waster/electronic was reported in the area.
1.9 Energy (i.e. Wasted Energy, Renewable Energy)	The project is located inside the operating factory in the industrial estate area which uses electricity from power grid.
1.10 Land Use	The project is located inside the operating factory in the industrial estate area.
1.11 Biodiversity	The project is located inside the operating factory in the industrial estate area, which was built more than 10 years ago so biodiversity is not relevant to this factory.
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

Area of Assessment	Description
	industrial economic zone. The society comprises largely of working-class who engage in manufacturing and official work. With employment opportunities arising from manufacturing business with established enterprises, 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. As locating in industrial estate, 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.
2.5 Transportation	Primary mode of transportation in the area is private vehicles (cars 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 largely driven by industrial business in Chonburi. The average monthly income and monthly expenditure is similar with the ones for Bangkok.
3.2 Employment/Career	Factory workers, local merchants.
3.3 Major agricultural activity in the area	It is industrial estate area so no agricultural activity in the area is found.
3.4 Major industry in the area	Manufacturing factories for automotive/electronics industry and many Japanese companies are in operation
3.5 Major service sector in the area	related to industrial economic zone
3.6 Basic infrastructure (i.e. road, school, etc.)	For Industrial Estate, the basic infrastructure in the area includes transportation (road network, public transportation), utilities (electricity, water supply, waste management), healthcare 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	Amount of energy saved (Unit: kWh)	Reduction of energy consumption for factory operation
☐ 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		
☐ SDG 15: Life on Land		

Project Contributions to SDGs	Indicator (Please specify)	Description of Indicator
☐ 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	7
SDG Target	Affordable and clean energy
Variable or Indicator	Amount of energy saved (Unit: kWh)
Duration/Frequency	daily
Method/Tool	Power meter
Responsible person	Staff of Bridgestone Tire Manufacturing Thailand

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

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		✓			Chiller machines commissioned may cause the sound pressure to surroundings/environment.	The project minimized the impact caused by possible noise of the chiller by installing it in a dedicated space where existing chiller machines have been located for factory operation over years.
Odor pollution	✓					
Soil erosion, coastal/river erosion	✓					
Vulnerability to natural disaster	✓					
Other	✓					
1.2 Waste management						

Potential Impact of Project Activity	Severity Level of Impact				Description of Impact	Action Plan to mitigate harmful impacts
	None	Low	Moderate	High		
Increase in solid waste/municipal solid waste	✓					
Increase in hazardous waste such as waste contaminated with oil, chemicals and used oil etc.		✓			The chiller uses refrigerant that becomes hazardous waste at the end of its life cycle.	The project ensures supplier of chiller machine to manage the transportation and disposal of the refrigerant as regular maintenance service.
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	✓					

Potential Impact of Project Activity	Severity Level of Impact				Description of Impact	Action Plan to mitigate harmful impacts
	None	Low	Moderate	High		
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	✓					
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	✓					

Potential Impact of Project Activity	Severity Level of Impact				Description of Impact	Action Plan to mitigate harmful impacts
	None	Low	Moderate	High		
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.	✓					
Other	✓					
3. Economic impacts						

Potential Impact of Project Activity	Severity Level of Impact				Description of Impact	Action Plan to mitigate harmful impacts
	None	Low	Moderate	High		
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	Noise pollution (Workplace) Occupational noise exposure
Vulnerable group	Employees / workers
Possible negative impact	Noise from the chiller
Parameter/indicator	Time Weighted Average (TWA) - 24-hr Leq ≤ 70 dB(A) - 8 hrs/day ≤ 85 dB(A) - only 2.5 hrs higher 90 dB(A)
Reference	Department of Labor Protection and Welfare Notification (Royal Gazette, Jan 26, 2018) Ministry of Industry Notification (Royal Gazette, Jan 25, 2006)
Duration/frequency	During maintenance service
Method/Tools	Apply the method outlined in the announcement
Responsible person	Staff of Bridgestone Tire Manufacturing Thailand
Expected outcome	The noise does not exceed the level stated in the specification

Category of negative impact	Impacts on Environment and Natural Resources
Subcategory of negative impact	Increase in hazardous waste such as waste contaminated with oil, chemicals and used oil etc.
Vulnerable group	People in nearby communities
Possible negative impact	Chemical (refrigerant) from the chiller
Parameter/indicator	No leakage of refrigerant after maintenance service
Reference	Ministry of Industry Notifications on hazardous substances control (covering HCFCs and HFCs) Thai hazardous substance regulations
Duration/frequency	per maintenance service
Method/Tools	Supplier of chiller machine to manage the transportation and disposal of the refrigerant as regular maintenance service.
Responsible person	Staff of Bridgestone Tire Manufacturing Thailand
Expected outcome	Completion report of maintenance service