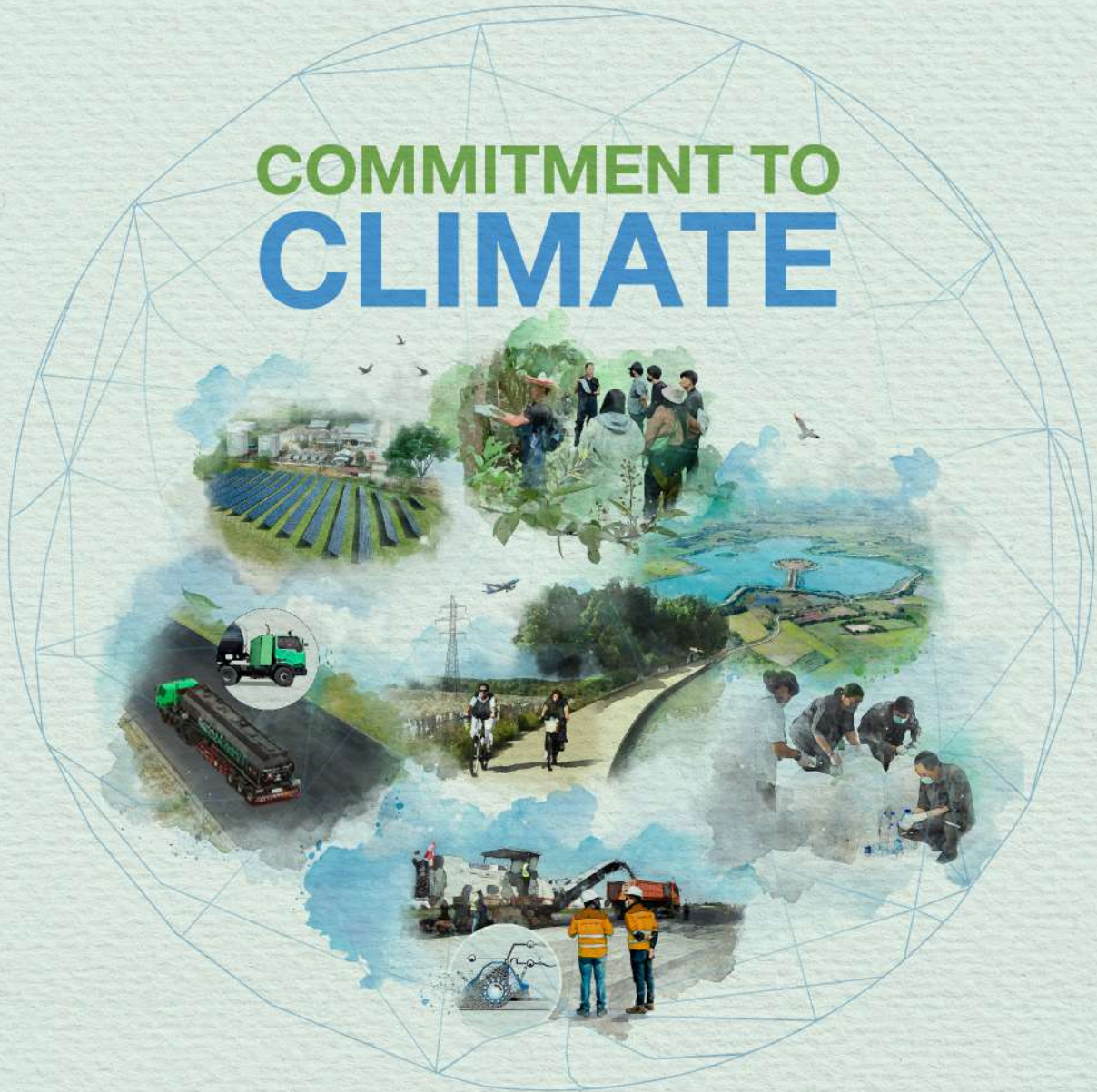




TIPCO ASPHALT PUBLIC COMPANY LIMITED

COMMITMENT TO CLIMATE



SUSTAINABILITY REPORT 2023

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ABOUT THIS REPORT

Tipco Asphalt Public Company Limited and its subsidiaries, collectively referred to as the “Group” prepared their Sustainability Report for the year 2023, for the 6th edition. This report is prepared in accordance with the Group’s sustainability strategy to provide non-financial information to relevant stakeholders, enabling them to understand the Group’s business operations that align with sustainable development guidelines. The report communicates the Group’s strategies, management approaches, and operational processes regarding materiality issues that impact the business and all stakeholder groups along the

value chain in 2023. It also reports on the progress of sustainability performance and alignment with the United Nations Sustainable Development Goals (UN SDGs).

This Sustainability Report has been verified and assured of environmental and safety performance by the Management System Certification Institute (Thailand) - MASCI. The assurance statement for the reliability of the information is presented in the Assurance Statement section of this report on page 162.

Global Reporting Initiative (GRI) Framework and Scope

This report has been prepared in accordance with the Global Reporting Initiative (GRI) Standards 2021 (Reporting in accordance with the standards). The quality control of the report preparation follows the Reporting Principles of accuracy, balance, clarity, comparability, completeness, sustainability context, timeliness, and reliability/verifiability.

For economic performance data, the scope covers the Company’s operations in Thailand and

overseas. The report also presents strategies for driving sustainability initiatives aligned with the corporate strategy and Vision 2025.

The reporting scope for sustainability strategy performance covers innovation (economic dimension), eco-efficiency (environmental dimension), and safety (social dimension) from January 1st to December 31st, 2023.

Content and Significant Changes

The Sustainable Development and Good Corporate Governance Committee has reviewed the Environmental and Climate Policy as well as the Sustainable Procurement Policy. This is to ensure the Company’s operations are aligned with achieving sustainable and enduring business goals. The policy revisions were purposed and approved by the Board of Directors for approval on November 13th, 2023.

The review of Environmental and Climate policy emphasizes the importance for the Group to prioritize environmental conservation and prevent climate-related issues. The focus is on reducing greenhouse gas emissions and promoting efficient energy usage to support sustainable development and mitigate risks associated with climate change.

Furthermore, the Sustainable Procurement policy has been thoroughly considered to ensure that the procurement process is adequate and transparent. The focus is on selecting quality and environmentally friendly materials and products, as well as supporting local procurement to promote local development and strengthen economic independence in the area. This is to enable the Group to conduct business sustainably and efficiently in accordance with the established principles.

In 2023, the Group has reviewed the material topics assessment results and the disclosure of information in the 2023 Sustainability Report. The report covers 11 key material topics, encompassing the Group's operations in economic, social, and environmental dimensions. Other secondary material topics are disclosed on the website of Tipco Asphalt Public Company Limited or <https://www.tipcoasphalt.com/sustainability/>.

Sustainable Development Action Guidelines According to the United Nations Framework and Social Responsibility Guidelines

The Group is committed to being part of the global community in supporting sustainable development by aligning its operations throughout the business value chain with the United Nations Sustainable Development Goals (UN SDGs). Furthermore, the Group has joined the United Nations Global Compact (UNGC) on May 24th, 2023, which is a set of principles related to human rights, labor, environment, and anti-corruption.

The Group's social responsibility practices are based on "ISO26000", which is a guidance on social responsibility from the International Organization for Standardization (ISO). The Group has voluntarily and continuously reviewed its operational guidelines and processes since 2010 by the Management System Certification Institute (MASCI) to ensure that its business operations consistently adhere to international standards.

Business Group/ Company	Company's Shareholding ^{1/} (%)	Total Revenue Percentage	Innovation Leader	Eco-Efficiency	Safety Awareness	Good Corporate Governance	Value for the future
1. Asphalt and Petroleum Related Business							
Tipco Asphalt Public Co., Ltd.	-	49.39	●	● ^{2/}	● ^{2/}	●	●
Thai Bitumen Co., Ltd.	99.99	4.65	●	● ^{2/}	● ^{2/}	●	●
Raycol Asphalt Co., Ltd.	99.99	1.85	●	● ^{2/}	● ^{2/}	●	●
Rawana 1020 Co., Ltd.	99.99	0.44			●		
Tipco Asphalt (Cambodia) Co., Ltd.	100.00	2.92			●		
KOC and KBC and Subsidiaries	100.00	2.88			●		
TIH and Subsidiaries	100.00	2.86			●		
Highway Resources Pte Ltd. and Subsidiaries	100.00	13.38			●		
PT Asphalt Bangun Sarana and Subsidiaries	99.99	6.66			●		
Tipco Asphalt Lao Co.,Ltd	75.00	1.21			●		
Total		86.24					
2. Marine Group							
Tipco Maritime Co., Ltd.	99.99	0.01		●	●		●
Delta Shipping Co., Ltd.	99.99	0.00		●	●		●
Alpha Maritime Co., Ltd.	99.99	0.92		●	●		●
Bitumen Maritime Co., Ltd.	99.99	1.08		●	●		●
Tasco Shipping Co., Ltd.	99.99	1.20		●	●		●
AD Shipping Pte. Ltd.	100.00	0.45		●	●		●
Reta Link Pte. Ltd.	100.00	-		●	●		●
Pacific Bitumen Shipping Pte. Ltd.	100.00	1.05		●	●		●
Elimination		(4.54)		●	●		●
Total		0.17					
3. Construction Business Group							
Thai Slurry Seal Co., Ltd.	62.50	1.67		●	●		●
Thanomwongse Service Co., Ltd. by TSS)	(99.99)	11.14		●	●		●
Total		12.81					
Sales and service income		99.22					
Other income		0.78					
Total Revenue		100.00					

Remark:

^{1/} Referring to the revenue and shareholding structure of the 56-1 ONE Report 2023, pages 16 and 29-32.

^{2/} The disclosure of this information has undergone review for accuracy and assurance of the performance by the supervisory and security departments of the accredited institution, Management System Certification Institute (Thailand) - MASCI.

MESSAGE FROM THE CHAIRMAN



Tipco Asphalt Public Company Limited (the “Company”) aims to be a Sustainable Organization by establishing sustainability policies and strategies that align with the company’s strategic goal (S6 Sustainable Organization). This approach guides the Company’s operations across economic, social, and environmental dimensions under the principles of good corporate governance. By leveraging innovation and technology, the Company supports transparent business practices and prioritizes the safety and well-being of employees and the community, fostering a harmonious coexistence. Additionally, the Company is dedicated to conserving natural resources and protecting the environment.

In 2023, beyond executing the aforementioned strategies, the Company began expanding the scope of sustainable development initiatives to include its subsidiaries. Additionally, the Company initiated the development of climate change strategies to contribute to the country’s greenhouse gas reduction targets (Nationally Determined Contribution: NDC).

Through dedicated efforts throughout 2023, the Group has successfully advanced its sustainable development agenda, earning several prestigious awards:

- **Disclosure of Sustainability Information:** Received the 2023 Sustainability Disclosure Award from Thaipat Institute for the 5th consecutive years.
- **Global Sustainability Assessment:** Achieved a 78th percentile score in the S&P Global Corporate Sustainability Assessment (CSA).
- **Innovation:** The Surat Thani and Nakhon Ratchasima plants won awards at the Thailand Kaizen Awards 2023, organized by the Thai-Japanese Technology Promotion Association, for innovations that enhance operational efficiency and safety.
- **Environmental Awards:** The asphalt plants in Rayong and Phra Pradaeng received the highest level (Level 5) Green Industry Award from the Department of Industrial Works, Ministry of Industry. The Phra Pradaeng and Surat Thani plants also received the 2023 EIA Monitoring Awards for outstanding compliance with environmental impact assessment measures.

- **Safety Awards:** Recognized as an outstanding model for safety, occupational health, and working environment at the national level, winning awards such as “Partners for Safe Transportation” and the bronze-level “Zero Accident Campaign” from the Department of Labour Protection and Welfare, Ministry of Labour.
- **Corporate Governance:**
 - Achieved ISO/IEC 27001:2022 certification for Information Security Management System (ISMS) from BSI Group (Thailand), ensuring effective risk management in organizational data security.
 - Recertification for the Thai Private Sector Collective Action Coalition Against Corruption (CAC) for the second time, valid from June 2023 to June 2026.

These achievements highlight the Group’s steadfast commitment to continuous sustainable development, adhering to business principles that consider society, the environment, and good corporate governance, ultimately creating shared value.



(Mr. Chainoi Puankosoom)
Chairman

MESSAGE FROM THE CHIEF EXECUTIVE OFFICER



Tipco Asphalt Public Company Limited is a leading producer and distributor of asphalt products for use in construction and maintenance of roads (highways and airport runways), both in Thailand and throughout the Asia-Pacific region. We emphasize sustainable development in economic, social, and environmental aspects, along with fostering innovation culture and effective risk management. Our long-term business strategy focuses on sustainable development, which is the core of our business operations. In 2023, the company achieved significant milestones in various areas, including:

Economic Strategy: Innovation as a Driver for Business Transformation

We aim to cultivate an “innovation culture” by fostering collaboration among departments, creating conducive work environments, and empowering employees to demonstrate creative potential through various programs and initiatives. These include promoting innovation-focused thinking processes through training programs such as the Innovation Boot Camp, encouraging innovative ideas through the Innovative Solutions Award, accelerating the development of innovative ideas into market-ready products through the Innovation Accelerator program, recognizing and celebrating small wins through departmental and employee-driven initiatives, and maintaining sustainable productivity through Total Productive Maintenance (TPM), ensuring everyone’s involvement.

Social Strategy: Promoting Safety Awareness

The Group implements various programs to raise safety awareness among employees and stakeholders, including:

- **Road Safety:** Initiatives such as sharing knowledge on road repairs using premixed asphalt products and training on basic life-saving skills (CPR & AED) for community health volunteers, local government officials, community members, and customers. Programs also include educating children and youth on road safety.
- **Employee Safety:** Projects include surveying routes and assessing risks to create logistics safety guides for delivery drivers; providing personal protective equipment (PPE), and conducting safety training for employees. Establishing safety reporting standards and preparing quarterly safety reports are also part of the strategy.
- **Customer, Contractor, and product-delivery contractor Safety:** Training programs like the Defensive Driving Course are offered to enhance safety for customers, contractors, and delivery personnel.

Environmental Strategy: Eco-Efficiency

The Company focuses on operational efficiency with minimal environmental impact. Key environmental achievements include a 32.71% reduction in greenhouse gas (GHG) emissions intensity per ton of production this year compared to the base year of 2020. Additionally, the Company is developing climate change strategies to enhance its efforts in reducing greenhouse gas emissions.

On May 24th 2023, the Company has become a member of the UN Global Compact (UNGC) to strengthen and elevate its sustainable development efforts by adhering to the 10 principles of the UNGC in accordance with the Company's operational scope.

The 2023 Sustainability Report summarizes the Group's performance and achievements in sustainable development, including an analysis of key materiality topics and responses to stakeholder expectations. The Group is committed to driving sustainable success by prioritizing eco-friendly business practices, improving the quality of life in society, maintaining good corporate governance, promoting employee training and education, and delivering long-term benefits to stakeholders.



(Mr. Chaiwat Srivalwat)
Chief Executive Officer

BUSINESSES OF TIPCO ASPHALT GROUP



Get to Know Tipco Asphalt Group. Leader in the Asphalt Business

Tipco Asphalt Group was founded by Mr. Prasit Supsakorn, who started the oil & gas business as an oil dealer and gas station operator. Subsequently, the Group entered into the asphalt business as a drummed asphalt truck delivery contractor for the Department of Highways. The Group recognized that asphalt is a crucial raw material for road construction and essential infrastructure development in the country, including production, transportation, export, and other aspects. Mr. Prasit Supsakorn decided to construct the first asphalt emulsion plant in Lat Krabang Industrial Estate in 1979.

Since its inception, the Group has aimed to be a responsible member of society through its commitment to conducting business with good corporate social responsibility through offering and promoting the use of asphalt emulsion in road construction and maintenance. as asphalt emulsion uses water as an ingredient, eliminating the need for high heat during application and hence reducing pollution, making it more environmentally friendly than conventional asphalt.

Tipco Asphalt Group is a leader in the production and distribution of a full range of asphalt products for use in roads and highways construction, pavement maintenance, elevated roads, and airport runways in Thailand and the Asia-Pacific region. The asphalt products are manufactured at the Group's refineries in Malaysia and other production plants in many countries in the region and delivered to customers and subsidiaries in various countries such as Laos, Cambodia, Vietnam, Indonesia, China, the Philippines, Malaysia, and India, primarily through the Group's trucks and asphalt tankers. The subsidiaries produce and deliver asphalt products that meet the market demands in their respective countries.

Furthermore, the Group exports asphalt products to importers, construction contractors, and road maintenance companies from other regions, such as Australia, New Zealand, Qatar, Mauritius, Réunion, America, and South Africa.





Refinery Business

The Kemaman Bitumen Company Limited (KBC) refinery in Malaysia is designed to refine Naphthenic based crude oil using the straight-run distillation process. This technique makes asphalt the main product of the refinery, allowing for better control and quality assurance compared to typical crude oil refineries where asphalt is often a by-product of the refining process.

Marine Business

The Group has a total of 42,956 metric tons (DWT) of asphalt tankers to support the delivery of asphalt to customers worldwide. The management system and technology focus on safety, environmentally friendly, and sustainable operations.



Domestic and International Asphalt Products Business

The Group has built trust and confidence with customers as a market leader in domestic and international asphalt products, thanks to its product quality, customer service, and expertise in asphalt transportation in the Asian region.

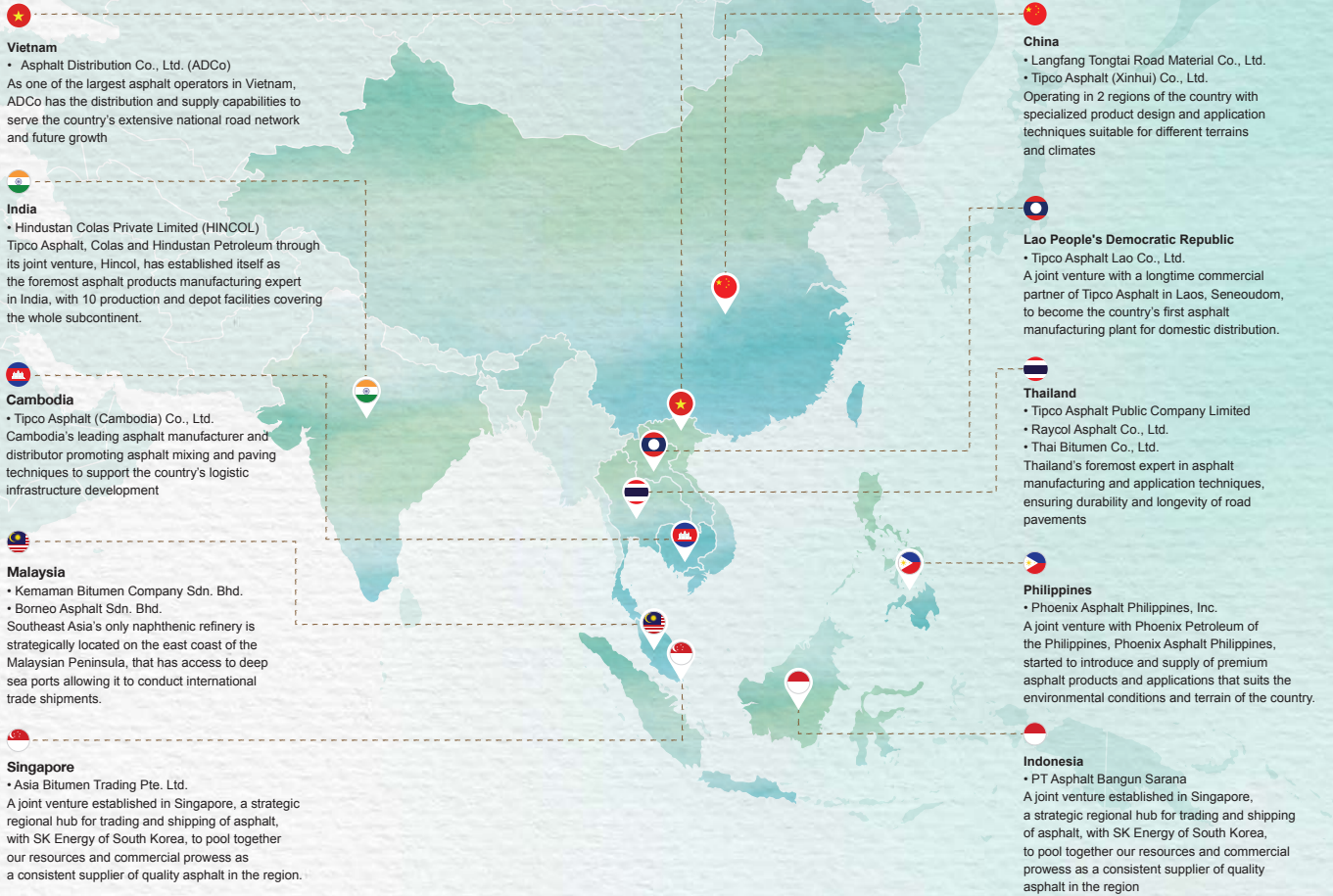
The Group can deliver products by land and sea to subsidiaries operating in 10 countries in Asia, each capable of producing asphalt products that meet the specific market and customer requirements in their respective countries.

The delivery of each type of asphalt has strict and varying transportation requirements, following both domestic and international delivery standards, whether it's asphalt cement, asphalt emulsion, or polymer-modified asphalt. This ensures that product quality is maintained throughout the transportation process, delivering the highest level of confidence and satisfaction to customers.

Construction Business

The Group's construction business can utilize Group's with high-quality asphalt products in road construction and maintenance projects. With the Group's fully integrated business value chain, it is one of the few leading asphalt road construction companies in Thailand with the potential and experience to provide construction services in Thailand and neighboring countries. In addition, the technical service team is always available to advise and assist with product usage and paving techniques according to customer requirements.





Refinery with asphalt production capacity of refinery

1,200,000 tons per year

Asphalt depot with total capacity over

308,000 metric tons.

Asphalt Emulsion and Polymer-Modified asphalt plants:

44 Plants

Asphalt terminal:

34 terminals

Asphalt ports:

22 Ports

Distributing and selling asphalt products to over

20 countries worldwide

CORPORATE STRATEGY AND VISION 2025



Mission

To be a globally preferred integrated asphalt solution partner



Vision 2025

To provide asphalt solutions in a sustainable manner led by an innovation culture

Strategic Goals

S1

A Truly Global Entity

Recognized as the industry leader exemplifying global standards.

S2

Diversified Portfolio of Solutions

Diversified portfolio of solutions to serve needs of all customers.

S3

Innovation Beyond Product

Instill innovative culture within organization to improve efficiency of our processes and services.

S4

Client Centric

Exceed customers' expectations through anticipation of their future needs.

S5

Datum Driven Organization

Optimize business intelligence for efficient decision making.

S6

Sustainable Organization

Encourage innovative, eco-efficient and safety mindset in a sustainable organization.

Core Values: A Pathway to Tipco Asphalt’s Integration and Innovation Culture

Tipco Asphalt Group embraces the "TIPCO" Corporate Values, consisting of 5 principles applied in conducting business operations in accordance with corporate governance, social responsibility, and transparency. The company's board of directors, executives, and employees are committed to upholding and adhering to these corporate values consistently, fostering trust, openness, and accountability among all stakeholders. This commitment has earned the trust of being a transparent, scrutinizable, and accountable organization, allowing everyone involved to contribute to creating an innovative culture embedded in every aspect of the company's operations. Encouraging participation in creating change, enhancing efficiency, and fostering a culture of continuous improvement, empowering employees to embrace new technologies and adapt to ever-changing global dynamics. With a strong foundation rooted in innovation, creativity, and continuous learning, these guiding principles lead to the development of a robust and sustainable organization, poised for steady and enduring growth



**Execute with
TEAMWORK**

- Apply individual strength to achieve team objectives
- Understand your task well
- Trust others
- Execute with speed, accuracy and competency
- Take ownership
- Share success and rewards
- Celebrate wins no matter how big or small.



● ○ ○ ○ ○



**Act with
INTEGRITY**

- Within laws and ethical standards
- Zero tolerance to misconduct and unlawful activities
- Be a responsible social and corporate citizen



○ ● ○ ○ ○



**Proceed with
PRUDENCE**

- Take risk with care and anticipate the consequences
- Do thorough analysis using reliable data, intuition, experience and technology before making decisions



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**Show our
COMMITMENT**

- Put organization goals first
- Dedicate to excellence
- Respect stakeholders' needs
- Put effort and energy to make all missions possible



○ ○ ○ ● ○



**Keep an
OPEN-MIND**

- Be approachable
- Unafraid of change
- Embrace feedback and listen attentively
- Cultivate diverse ideas.



○ ○ ○ ○ ●

AWARDS AND STANDARDS



Awards in 2023

No	Award	Asphalt Business						Thai Slurry Seal Company Limited
		Tipco Asphalt Public Company Limited	Phra Pradaeng Plant	Phitsanulok Plant	Nakhon Ratchasima Plant	Raycoal Asphalt Company Limited	Thai Bitumen Company Limited.	
1	2023 Sustainability Disclosure Award Thaipat Institute	5 th consecutive year	-	-	-	-	-	-
2	Outstanding establishment award in labor relations and labor welfare Department of Labor Protection and Welfare, Ministry of Labor	-	-	-	-	-	12 th consecutive year	-
3	Outstanding Establishment award in Safety, Occupational Health and Work Environment Department of Labor Protection and Welfare, Ministry of Labor	-	Gold level reward for the 3 rd year	Diamond level reward for the 6 th year	Gold reward for the 2 nd year	Platinum reward for the 17 th year	Platinum level reward for the 11 th year	-
4	Safety Transportation award Department of Welfare and Labor Protection, Ministry of Labor	-	-	Outstanding level	Outstanding level	Outstanding level	Outstanding level	-
5	Zero Accident Campaign Award Institution of the Promotion of Occupational Safety and Health and Work Environment (Public Organization), Ministry of Labor	-	Entry level	Entry level	Entry level	Bronze level	Bronze level	-
6	CSR-DIW CONTINUOUS AWARD 2023 Department of Industrial Works, Ministry of Industry	-	16 th consecutive year	15 th consecutive year	15 th consecutive year	14 th consecutive year	16 th consecutive year	-
7	Green Industry Award Department of Industrial Works, Ministry of Industry	-	Level 5	Level 5	Level 4	Level 5	Level 4	Level 2
8	Low Emission Support Scheme (LESS): Letter of Recognition Thailand Greenhouse Gas Management Organization (TGO)	-	Forestry Waste Energy	-	Forestry Waste Energy	Waste		
9	EIA Monitoring Award Office of Natural Resources and Environmental Policy and Planning	-	Outstanding level	-	-	-	Outstanding level	-
10	HR Innovation Award, Thailand Awards 2023 National Parade Productivity Institute (FTPI) Association Personnel Management of Thailand (PMAT) Institute for Professional Development (IHPD) Graduate School of Human Resource Development – National Institute of Development Institution	Silver level	-	-	-	-	-	-
11	Thailand Kaizen Award 2023 Thai-Japanese Technology Association	-	-	-	Certificate	-	Silver level	-

Certified Standards of the Group

The Group has integrated various international management systems into its operations, ensuring compliance with quality, environmental, occupational health and safety, information security, and social responsibility standards. This comprehensive approach ensures that employees work systematically in a

suitable environment, enhancing efficiency and effectiveness. This commitment results in delivering products and services that meet stakeholder expectations, fostering trust in the brand, reducing risks, and increasing business opportunities, all aimed at sustainable development.

Business Group/Company		Asphalt Business				Marine Group	Construction Group
		Tipco Asphalt Public Company Limited	Thai Bitumen Company Limited	Raycol Asphalt Company Limited	KBC Refinery	Tipco Maritime Company Limited	Thai Slurry Seal Company Limited
Certified Standards	ISO 9001:2015 Quality	●	●	●	●	●	●
	ISO 14001:2015 Environment	●	●	●	●	●	
	ISO 45001:2018 Occupational health and safety	●	●	●	●		
	IMS Integrated Management	●	●	●			
	ISO/IEC 17026:2017 Laboratory	●			●		
	ISO 39001:2012 Road Traffic Safety	●	●	●			
	TLS 8001:2020 Thai Labor Standards	●					
	ISO/IEC 27001:2022 Information Security Standards	●					
Guidelines	ISO 26000:2010 Social Responsibility	●	●	●			
	ISO 31000:2018 Risk Management	●					
	ISO/PAS 45005:2020 Guidelines for working safely during the Covid-19 outbreak	●	●	●			

Newly Certified Standards in 2023, ISO/IEC 27001:2022

The Group is committed to developing organization continuously. In the wake of current digital business environment, Tipco Asphalt Group remains dedicated to continuous organizational development. Recognizing the importance of cybersecurity in mitigating key business risks, the company has implemented robust information security measures. Since 2022, the Company has adopted the international framework of ISO/IEC 27001:2022 to systematically manage and protect information security.

In 2023, Tipco Asphalt Public Company Limited achieved ISO/IEC 27001:2022 certification from BSI Group (Thailand), reflecting the effective information security management and compliance with stakeholder requirements. This certification highlights the commitment to good governance, continuous monitoring, and system improvement, ultimately reducing business risks and enhancing operational continuity.











**PERFORMANCE
SUMMARY HIGHLIGHTS
IN 2023**

SUSTAINABILITY TARGETS AND RESULTS

Sustainability Strategy	Key Targets in 2025	Key Targets in 2023	Results in 2023
<h3>Innovation leader - for 10X exponential economic growth</h3>			
 	<ul style="list-style-type: none"> We have developed a comprehensive training and seminar platform to provide knowledge to contractors and relevant stakeholders. This system enables interactive learning both online and on-site, accessible 24/7 from anywhere. Leading Knowledge Hub in Asphalt Innovations for Road Construction. We are a central hub for learning and a leader in asphalt innovations, specializing in new construction, road maintenance, and advanced applications. 	<ul style="list-style-type: none"> Results of the innovation culture survey through the perspective of not less than 70 percent of employees. No less than 5 new environmental and social innovation projects 	<ul style="list-style-type: none"> Innovation culture survey results: 69 percent of organizational capabilities and 83 percent of employee capabilities. Two new innovation projects for society and the environment.
<h3>Eco-Efficiency Operations – For better planet</h3>			
 	<ul style="list-style-type: none"> Decreasing greenhouse gas emissions intensity by at least 6% from the 2563 baseline year, covering scope 1 and 2 	<ul style="list-style-type: none"> Decreasing greenhouse gas emissions intensity by at Least 4% from the 2563 baseline year, covering Scope 1 and 2 	<ul style="list-style-type: none"> Achieving a 32.71% reduction in greenhouse gas emissions intensity from the 2563 baseline year

Sustainability Strategy	Key Targets in 2025	Key Targets in 2023	Results in 2023
<h3 style="color: #e67e22;">Safety Awareness - Better Safe than Sorry</h3>			
 	<ul style="list-style-type: none"> • Zero loss time injury and fatalities • Zero Loss Time Injury Frequency 	<ul style="list-style-type: none"> • Zero fatalities among employees and subcontractors • Zero Loss Time Injury Frequency 	<ul style="list-style-type: none"> • Zero fatalities among employees and subcontractors • Loss Time Injury Frequency rate is 0.77 per one milliom hours worked
<h3 style="color: #2980b9;">Good Corporate Governance - For Strong Business Foundation</h3>			
 	<ul style="list-style-type: none"> • The Company has been ranked at the highest level under various assessments and guidelines for good corporate governance. 	<ul style="list-style-type: none"> • The company serves as a role model for corporate governance by maintaining a rating of no less than 5 stars of CGR program. • Score of Annual General Meeting (AGM) checklist is no less than 98%. 	<ul style="list-style-type: none"> • Score of AGM checklist is 98
<h3 style="color: #8e6c39;">Values for the Future – Be Ready for Change</h3>			
 	<ul style="list-style-type: none"> • Career growth planning for employees is measured by the success of at least 75% high potential employee according to individual development plan • successors of all planned positions are identified. 	<ul style="list-style-type: none"> • Technical and managerial training for 24 hours per person per year • Employee engagement with the organization is no less than 75%. 	<ul style="list-style-type: none"> • The average number of training hours in technical and managerial skills is 22.43 hours per person per year. • Employee engagement with the organization is at a level of 75.28%.

10 Sustainable Development Goals (SDGs) Performance Highlight in 2023

Recognising the importance of sustainable development, the Group integrate sustainability as part of core strategy under Vision 2025 in order to ensure that business operations and management processes meet the expectations and key concerns of employees and stakeholders across the value chain.

We are committed to being a part of the global community supporting sustainable development by aligning our operation with the Sustainable Development Goals (SDGs). Additionally, the Group has commenced reporting according to the principles of the UN Global Compact, which focuses on human rights, labor, environment, and anti-corruption within internationally recognized boundaries Reporting on sustainability is in compliance with the Global Reporting Initiative (GRI).

3 GOOD HEALTH AND WELL-BEING

Performance in 2023
SDG 3

Lost Time Injury Severity Rate (LTISR) for employees

3.85
incidents per one million hours worked

Lost Time Injury Frequency Rate (LTIFR) for employees

0.77
incidents per one million hours worked

Lost Time Injury Frequency Rate (LTIFR) for contracted cargo handlers

0
incidents per one million hours worked

4 QUALITY EDUCATION

Performance in 2023
SDG 4

Average hours of training or knowledge development per employee

38.71
hours per person per year

Number of delivery drivers who have undergone the Defensive Driving Course

81
individuals

Number of employees participating in Innovation Day activities

306
individuals

8 DECENT WORK AND ECONOMIC GROWTH

Performance in 2023
SDG 8

Investment in social/community development in the SD/CSR program

7.97
million bath

Average community satisfaction rate

94.1%

Employee turnover rate

8.49%

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Performance in 2023
SDG 9

Total innovation projects

49
Projects

Operational cost saving

450,000
bath

Operational time saving

3,400
hours



5 GENDER EQUALITY **Performance in 2023**
SDG 5

Female to male employee ratio **0.22 : 1**

Compensation ratio between female to male **1.23 : 1**

Proportion of female managers from entry level (M1) and above **27.7%**

6 CLEAN WATER AND SANITATION **Performance in 2023**
SDG 6

Water consumption **37.93**
Megaliters

Water withdrawal as compared to base year 2020 **6.1%**

Waste water treatment and reuse **2.85**
Megaliters

7 AFFORDABLE AND CLEAN ENERGY **Performance in 2023**
SDG 7

Energy consumption **147,694**
gigajoules

Energy intensity **0.27**
gigajoules per production unit

Energy consumption intensity (Gigajoules per production unit) compared to the base year 2020 **32.70%**

12 RESPONSIBLE CONSUMPTION AND PRODUCTION **Performance in 2023**
SDG 12

Total waste and refuse **172.54**
tons

Waste to landfill **27.6**
tons

Waste recycled or reused **240.5**
tons

13 CLIMATE ACTION **Performance in 2023**
SDG 13

Greenhouse gas emissions (Scope 1 and 2) **11,856**
tons of CO₂eq

Greenhouse gas intensity (Scope 1 and 2) **0.021**
tons of CO₂eq per production

Reduction of greenhouse gas emissions intensity compared to the base year 2020 **32.71%**

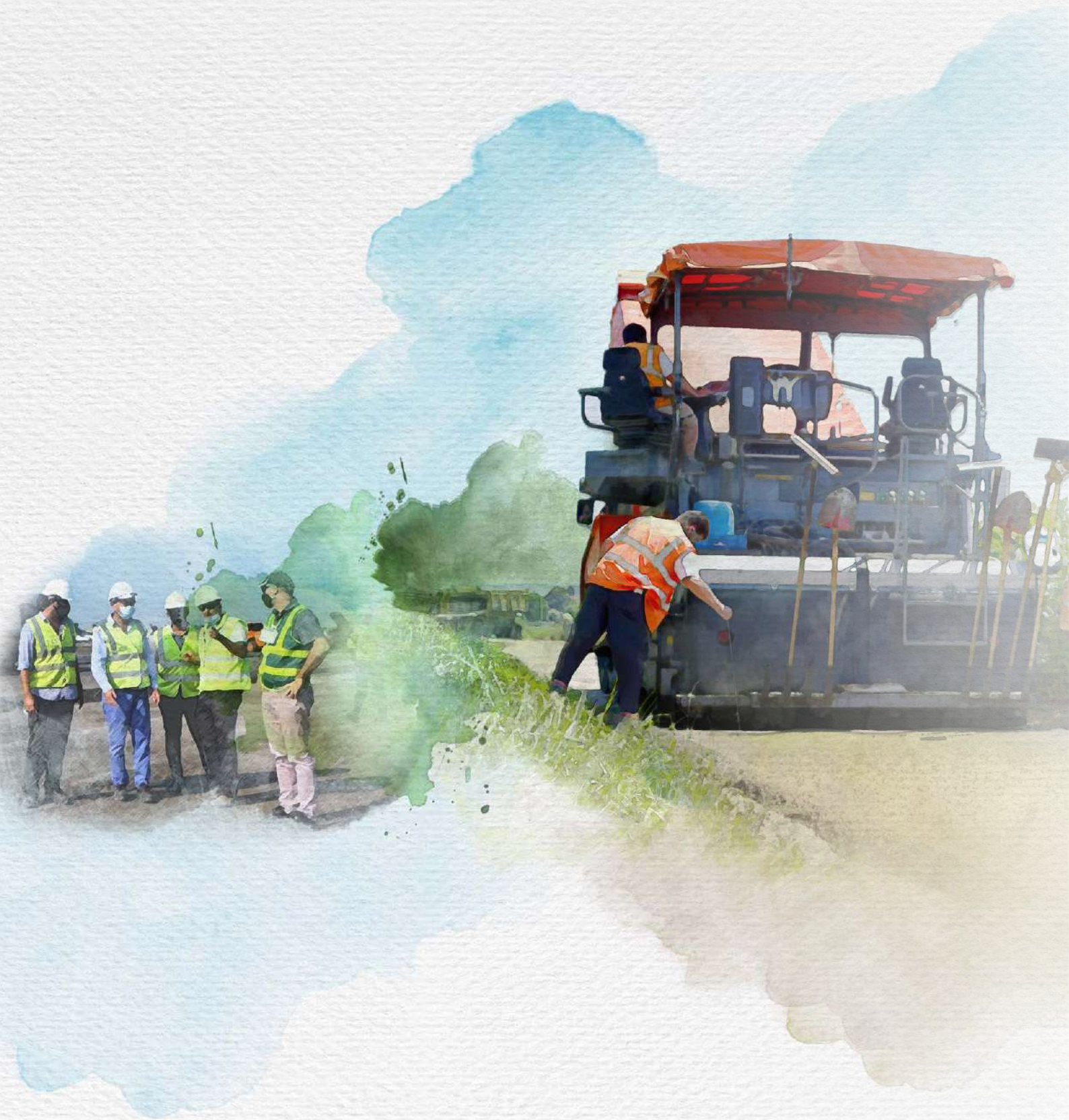
16 PEACE, JUSTICE AND STRONG INSTITUTIONS **Performance in 2023**
SDG 16

Number of complaint on customers data privacy **0**

Number of complaint on social or corporate governance issue **0**

Number of complaint relating to products/ services **8**

SUSTAINABILITY OF TIPCO ASPHALT GROUP



Definition of Sustainability of the Tipco Asphalt Company Group

Tipco Asphalt Group is committed to Sustainability to meet the expectations of stakeholders throughout the value chain, aligning with business ethics in economic, social, and environmental aspects with Enterprise Risk Management, corporate governance,

and people development to ensure that employees are resilient to change. The organization always strive to create and implement innovative solutions to drive long term growth and sustainable operation.



Policy and Supervision of Sustainability within the Tipco Asphalt Group

The Group has developed sustainable development framework which includes the approval and implementation of strategies and goal setting since 2020. Our sustainability vision, "innovative solutions for sustainable living for all societies," is communicated to all employees and stakeholders to ensure their understanding of mutual development goals. Systematic monitoring and control on result are in place. Sustainability practices are integrating into business operations. This ensures that every employee implements the strategic plans and fosters continuous development, resulting in beneficial outcomes for both the organization and society. Clear communication with employees and stakeholders groups enhances understanding and participation.

Policy Announcement and supervising from the Board of Directors



Reporting on Sustainability performance from employees to the Board of Directors



Scan QR Code to view the Sustainable Development Policy



Scan QR Code to view Sustainability Governance Information

Governance Structure of the Group's Sustainability

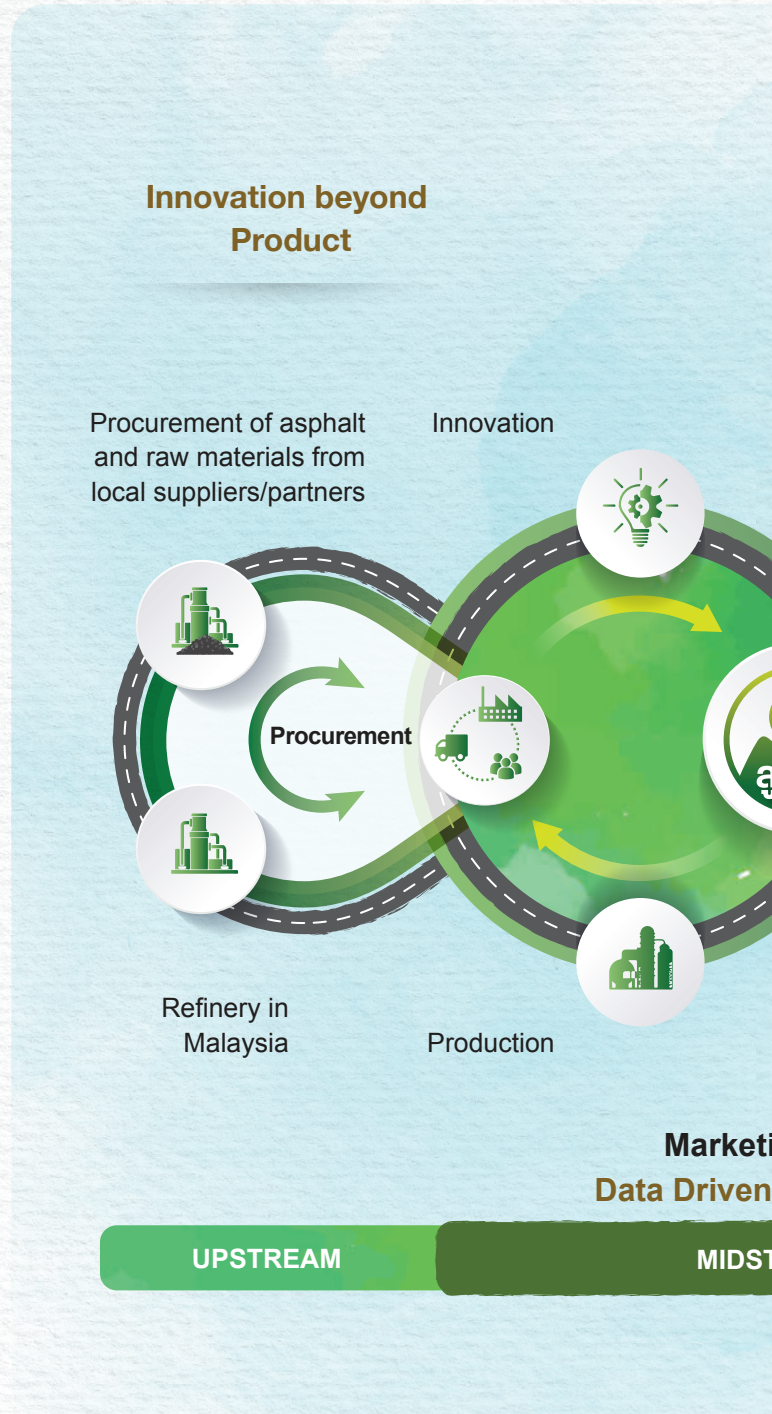
Structure	Roles and Responsibilities	Frequency
Board of directors	Approve strategies, goals, and budgets for sustainable development.	Quarterly (4 times)
Sustainable Development and Good Corporate Governance Committee	<ol style="list-style-type: none"> 1. Consider strategy, goals, action plans, and policies for sustainable development. 2. Follow up on sustainability and reports to the Board of directors. 3. Review the Group's sustainability policy and propose policies to the Board of directors for approval 	Quarterly (4 times)
Management meeting <ul style="list-style-type: none"> • Director level and above 	<ul style="list-style-type: none"> • Consider operating results that are not in line with plans and targets, and consider corrective actions or adjustments • Review and define direction, operational framework, policies, strategies, goals and action plans 	Quarterly (4 times)
Management <ul style="list-style-type: none"> • Department Head Level • Unit Head Level 	<ol style="list-style-type: none"> 1. Monitoring performance of sustainable development and ISO standard system through management review meetings 2. Coordinating information and providing recommendations for improvement in cases of underperformance compared to internal and external benchmarks 3. Preparing quarterly reports 	Quarterly (4 times)
Sustainable Development Department and Sustainability Working Team <ul style="list-style-type: none"> • Sustainable Development Officers • Volunteer Employees 	<ol style="list-style-type: none"> 1. Communicating operational framework, policies, strategies, goals and action plans to employees and stakeholders for acknowledgement and understanding 2. Promoting and coordinating with both internally and externally 	Monthly (12 times)
All employees	Implementing plans to achieve key sustainability goals together	

TIPCO ASPHALT GROUP VALUE CHAIN

Input Factors

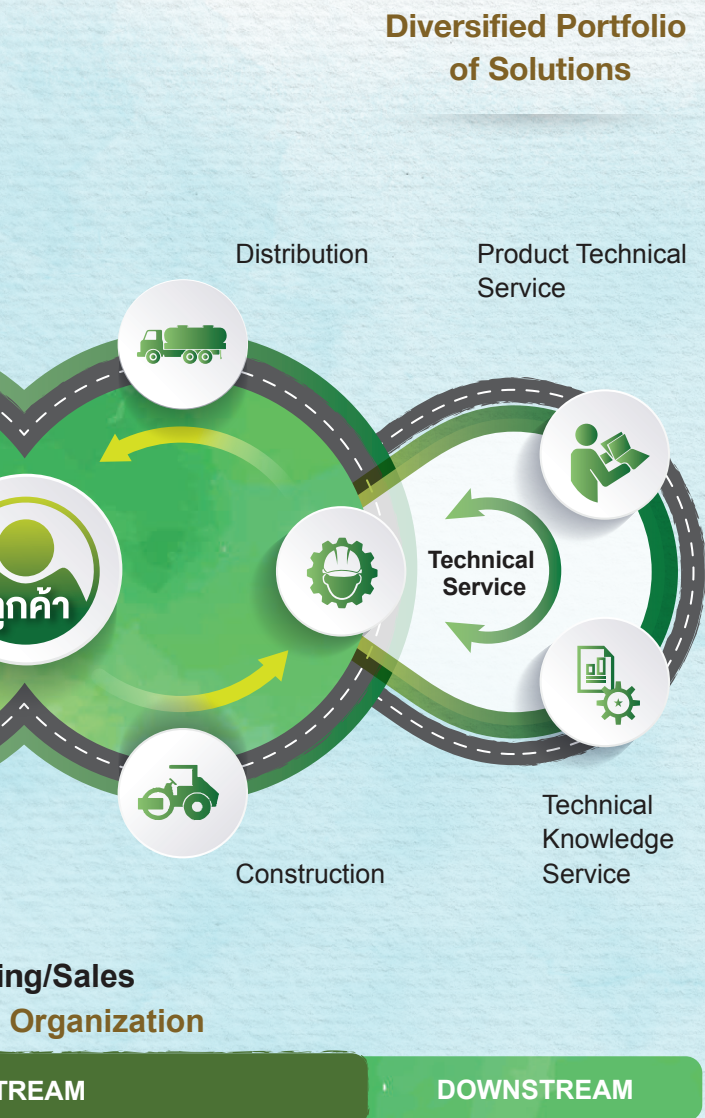


Client



The Group leverages its strength in adapting work processes to suit various situations, ensuring business continuity without disruption. It also builds resilience in various aspects, such as implementing database systems to reduce procurement risks while developing these systems for convenient, fast, and error-free use by relevant parties. The systems allow setting various conditions within a framework of good control and high flexibility.

Customer Centric



Value Added Creation

Economic

New products value specifically identified in 2023:

90.23 Million Baht
(from FIBROSEAL products)

Cost reduction from innovation projects
0.45 Million Baht

Time reduction
10,690 hours

Environmental

Ratio of reuse or recycling waste or used material:

85.98%

Environmental complaints
0 complaints

Waste water discharge
2.85 Megaliters

Social

Community Satisfaction Survey

94.1%

Life-Saving Training on CPR and AED
1,115 persons

Total Volunteering Hours working with communities
14,329 hours

Production

Reduction of Greenhouse Gas Emission Intensity

32.71%
compared to Base Year 2020

Reduction of Energy Consumption
32.70%

Reclaim wastewater
2.85 Megaliters

Cost Reduction from TPM Projects
6.68 Million Baht

Personnel

Employee turnover rate (voluntary)

8.49%

Employee Training Hours
38.71 hours/person/year

Statistic on work-related Illness, Injury, and fatality
0%

Key Corporate Risks and Emerging Risks

The Group has a comprehensive process for analyzing risks from internal business factors to assess the efficiency of internal operations. It also considers external factors that impact business operations, including changes in the asphalt and petroleum businesses both domestically and internationally. Other factors that have a significant impact include changes in the economy, politics, laws, environment, society, and technology.

Top Corporate Risk	Impacts	Risk Mitigation Measures
 <p>Uncertainty in crude oil supply and volatility in oil price</p>	<ul style="list-style-type: none"> Impact on the operations of refineries and wholesale businesses due to limited supply of feedstocks and imbalance between asphalt supply and demand in the market. Petroleum and related product price are highly volatile as a result of international conflicts, global economic conditions, and supply-demand situation in 2023, e.g., the ongoing geopolitical conflict between Russia and Ukraine persists, coupled with economic recessions in various countries and the war between Israel and Hamas. 	<ul style="list-style-type: none"> Procurement of alternative feedstocks from other sources Prudent management for procurement of crude oil and maritime transportation. The Group's risk management policy effectively safeguard against potential risks and supports operational performance. To mitigate the risk of crude oil and product price volatility, the Group carefully implements hedging strategies for each shipment.
 <p>Volatility of asphalt demand and prices in the international retail markets due to decrease in local and government budget.</p>	<ul style="list-style-type: none"> The demand for asphalt has decreased in specific countries such as China, Cambodia, Laos, Vietnam, and Indonesia. 	<ul style="list-style-type: none"> Promote special projects between public and private sectors: Promote the use of specialized asphalt and implement operational measures within the company for efficient product delivery.

Top Corporate Risk	Impacts	Risk Mitigation Measures
 <p>Uncertainty in procurement of Asphalt Cement</p>	<ul style="list-style-type: none"> Discontinuity on asphalt refining process and manufacturing for market 	<ul style="list-style-type: none"> Secure asphalt raw materials from other sources. Maintain a good long-term relationships with refineries across Asia, supported by delivery contracts. Obtain asphalt cement directly from the Group's refinery in Malaysia. Apply the production and storage of asphalt cement at the Group's Malaysia refinery effectively amidst tight supply conditions.

Emerging Risk	Impacts	Risk Mitigation Measures
 <p>Cyber Attacks and Cyber Insecurity</p>	<ul style="list-style-type: none"> The utilization of information technology to boost operational effectiveness has resulted in various cyber threats, including phishing emails, ransomware attacks, and data breaches. These threats pose risks to critical company data and stakeholder interests, leading to potential business interruptions. Phishing emails and malware are common techniques used to breach systems and pilfer sensitive data, resulting in significant financial and reputational harm to organizations. Risks associated with data breaches and unauthorized access to confidential information may lead to financial losses and reputational harm for group and stakeholders. 	<ul style="list-style-type: none"> Regular reviews IT governance and operations which may be vulnerable cybersecurity according to guidelines and company practices. Switch to cloud-based platforms to enhance data security Developing comprehensive security plans to ensures cybersecurity readiness, promoting understanding and accountability among employees and stakeholders for adherence to company practices. Establishing and implementing disaster recovery plans, ensuring the continuity of operations and minimizes disruptions in IT systems during emergencies, covering essential functions such as production, transportation, finances, and inventory management. Implementing measures to protect personal data involves appointing responsible personnel, reviewing and adjusting IT operations, and involving relevant stakeholders for accountability and support. Conducting periodic assessments and analyses of cybersecurity risks ensures compliance with ISO/IEC 27001 standards. These assessments include evaluating overall security measures and analyzing data security. Additionally, implementing Risk Treatment Plans (RTP) ensures controlled and systematic management of cybersecurity risks within the company.

Stakeholders Engagement and Material Topic Analysis



Tipco Asphalt Group: Stakeholder Groups Across Value Chain

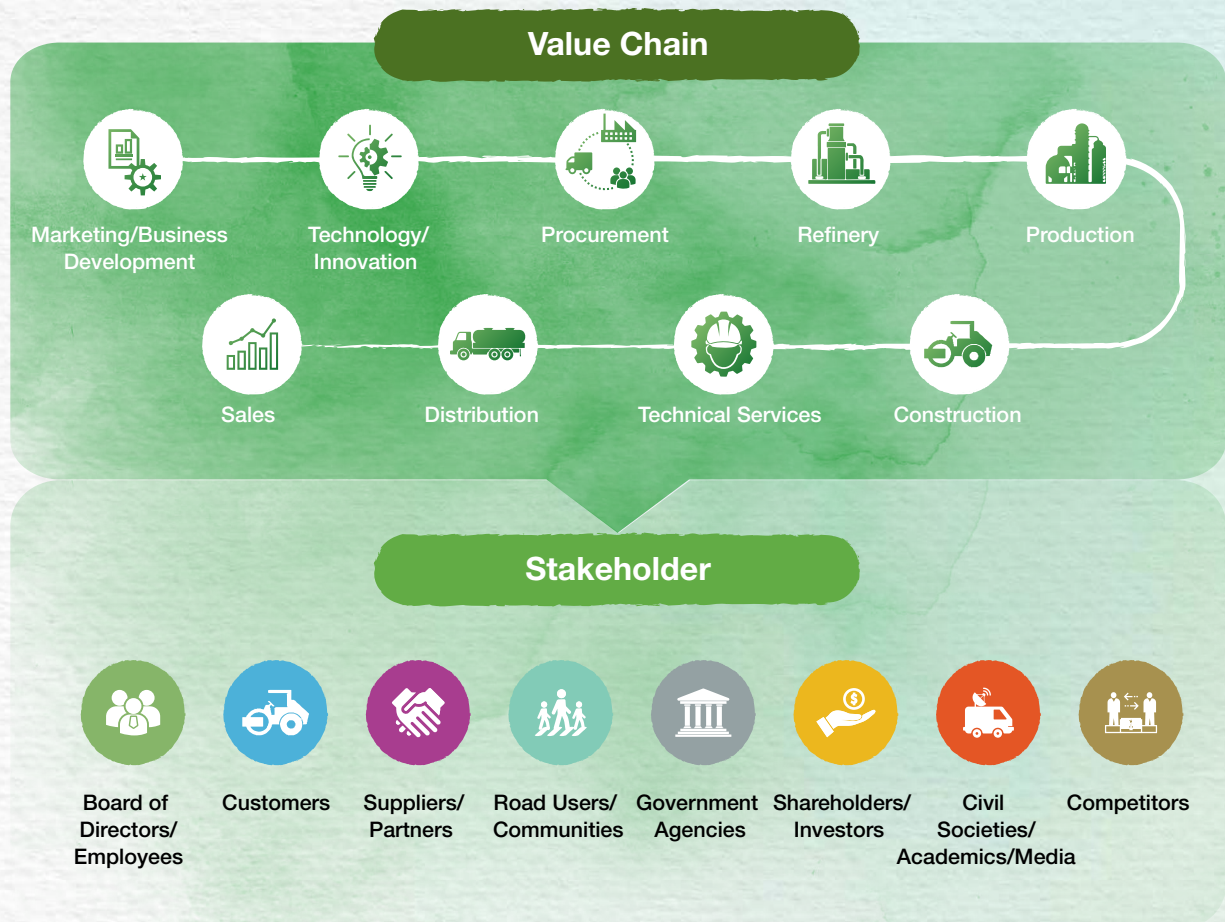
The Group places utmost importance on the participation of stakeholders, believing firmly that constructive relationships built on trust and receptivity to feedback are invaluable assets guiding the organization towards sustained growth.

The Group is committed to maximizing benefits for all stakeholders through consideration of their involvement, under the framework of sustainable development and social responsibility.

Hence, Stakeholder Engagement policy, approved by the Board of Directors on 12 May 2021, is established to efficiently manage stakeholders, ensuring responsiveness to their expectations and needs in every aspect. This is aimed at mitigating risks in reputation and halting business disruptions.



Scan QR Code to Access Stakeholder Engagement Policy

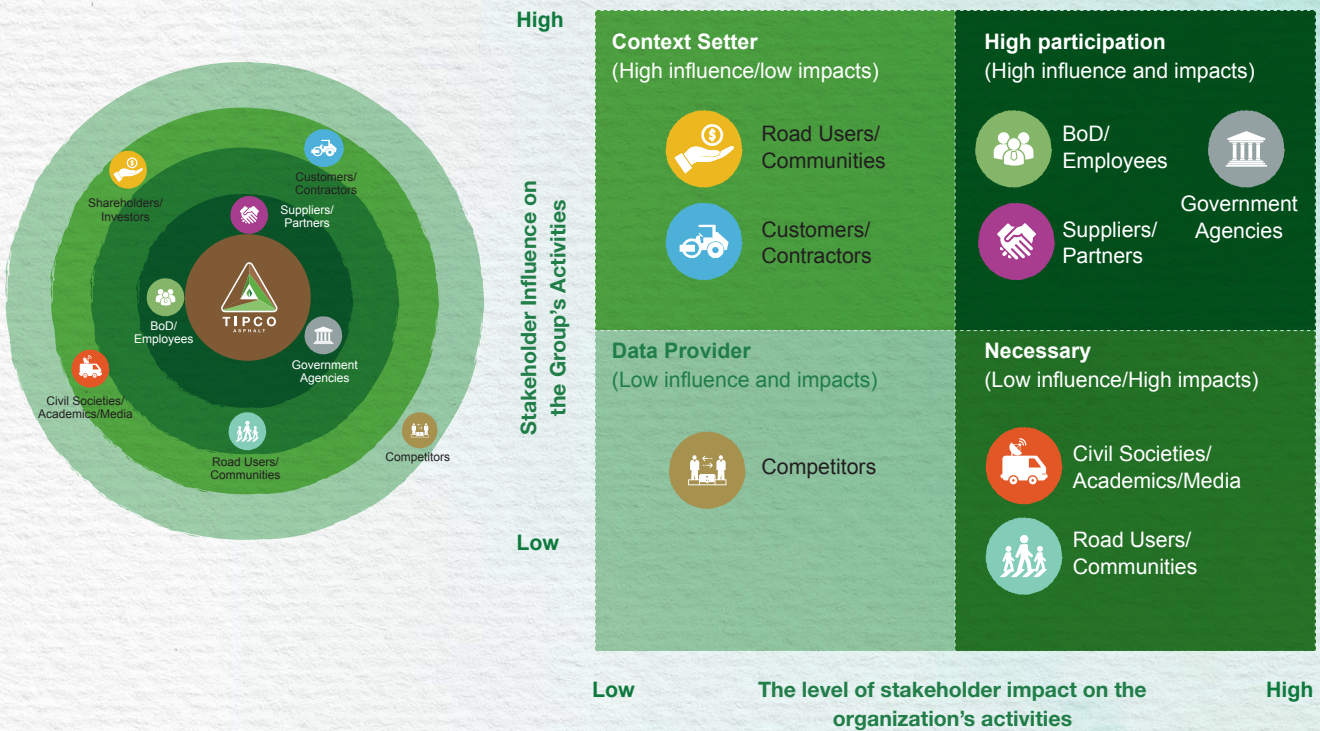


Tipco Asphalt Group: Stakeholder Relationship Management

The Group has developed a "Stakeholder Relationship Management Framework" systematically to provide clear guidelines in fostering participation and managing relationships with stakeholders. This framework specifies the processes for identifying and categorizing stakeholders, along with outlining management strategies and responses to the expectations or concerns of each stakeholder appropriately.

The framework also covers the regular evaluation of the effectiveness of these response approaches to ensure that the Group can continuously maintain good relationships with all stakeholders. In fostering stakeholder engagement, the Group employs a variety of appropriate communication channels and formats, including meetings, seminars, opinion surveys, as well as online media and social media platforms. These channels are used to listen to opinions, suggestions, and regularly exchange information with stakeholders in a comprehensive manner.

Stakeholder Identification and Prioritization



Scan QR Code to Stakeholder Relationship Management

Stakeholder Engagement

The Group has a process that allows stakeholders to participate and expressing their opinions, which will be used as part of formulation of the Group’s plans,

strategies, and policies. With this implementation, the Group can build trust and strong engagement with stakeholders.

Stakeholder Group	Board of Directors / Employees
Needs / Expectations	<ul style="list-style-type: none"> • Conduct business in compliance with laws, regulations, and business ethics • Manage the organization with transparency and accountability • Operate under the principles of sustainable development, considering the impact on the economy, society, and environment • Have a good quality of life, job security, and career advancement opportunities • Receive fair and appropriate compensation and benefits • Respect the basic rights and freedoms of employees
Engagement Channels/ Frequency	<ul style="list-style-type: none"> • At least 5 times Board of Directors meetings per year • At least 2 times Staff meetings per year, where the CEO presents important news to employees and allows them to ask questions, express opinions, or share concerns directly with the management for consideration and response • Communicate information to create awareness through internal communication channels such as TIPCO Connect and Intranet • Conduct employee engagement survey every 2 years
Benefits to Stakeholders	<ul style="list-style-type: none"> • Good corporate governance builds confidence in efficient and transparent business operations • Integrate sustainability into strategic and business plans helps strengthen long-term business stability • Assisting in an a safe and happy workplace, maintaining work-life balance, allowing employees to work with confidence and good health • Promote self-learning and development for career growth • Encourage and support employees to have opportunities for development and receive appropriate compensation
Highlight	<ul style="list-style-type: none"> • Sustainability Disclosure Award 2023 from Thaipat Institute for the 5th consecutive year • Certification and renewal of certification for the Thai Private Sector Collective Action Against Corruption (CAC) project • Zero fatalities for the Domestic and Marine business • Promotion rate of high-potential employees is 40% • Employee engagement survey results of 75.28%

Stakeholder Group

Suppliers / Partners

Needs / Expectations

- Conduct business and trade fairly, with honesty, integrity, transparency, and respect for the rules
- Respect the rights of suppliers and partners
- Promote and support suppliers/partners to continuously develop and improve their operations to increase operational efficiency
- Support suppliers/partners in entering the green industry process or environmentally friendly production

Engagement Channels / Frequency

- Provide suggestions for suppliers' operations through online systems, as well as telephone on regular basis
- Visit suppliers' establishments annually, either in person or through electronic means
- Organize joint activities in the field of social responsibility to build good relationships
- Open channels for receiving complaints from suppliers through the Group's website or contact channels

Benefits to Stakeholders

- Sharing and exchanging information, knowledge, and international standard business practices, enabling suppliers/partners to develop their potential
- Help increase business competitiveness and more efficient business management
- Suppliers and partners can develop their business potential and self-reliant in a sustainable manner
- Help reduce the risk of product and service quality which may affect customer trust and satisfaction in the future

Highlight

- Disseminate the Supplier Code of Conduct and encourage suppliers to adhere to business ethics, operate with environmental and social care, and good corporate governance
- Procure raw materials and packaging within the required time, accounting for 95.65% of the annual purchase volume
- Procure raw materials and packaging that meet the required quality standards, accounting for 100% of the annual purchase volume
- The value of environmentally friendly (Green Product) procurement in Thailand accounts for 1.06% of total annual revenue from asphalt product
- The value of local procurement accounts for 0.51% of total annual revenue from asphalt product
- 4 and 6 on-site and online supplier visits, respectively
- Zero fatalities among contractors in Thailand

Stakeholder Group	Government Agencies
Needs / Expectations	<ul style="list-style-type: none"> • Able to comply with relevant laws, regulations, and requirements • Able to comply with standards and requirements to ensure that products or services are of quality and safe according to the specified standards • Reporting accurate and complete information to ensure transparency and accountability • Establish policies and processes that focus on anti-corruption and non-violation of rights, which may include establishing a whistleblowing system and an appropriate response to violations that occur within the organization
Engagement Channels / Frequency	<ul style="list-style-type: none"> • Attending meetings to understand relevant rules and standards • Participating as an advisory committee to provide advice and recommendations related to road construction standards in Thailand, etc. • Opening for visits to asphalt production plants (Open house) • Participating as a member of independent organizations related to business operations, such as the Global Compact Network Association of Thailand, a member of the Carbon Neutral Network of Thailand, etc.
Benefits to Stakeholders	<ul style="list-style-type: none"> • Cooperate and support projects for sustainable development goals • Pay taxes for local development and focus on local employment
Highlight	<ul style="list-style-type: none"> • Support the United Nations' Sustainable Development Goals by continuously organizing the group's main social activity projects
Stakeholder Group	Shareholders / Investors
Needs / Expectations	<ul style="list-style-type: none"> • Opportunities for investment growth and business sustainability • Good Corporate Governance and disclosure of important information on business direction
Engagement Channels / Frequency	<ul style="list-style-type: none"> • Organize annual shareholders' meeting once a year • Organize analyst meetings and participate in Opportunity Day 4 times per year • Communicate performance and other information through annual reports and sustainability reports on the company's website • Whistleblowing channels
Benefits to Stakeholders	<ul style="list-style-type: none"> • Provide appropriate returns • Prudently manage the Group business growth and manage controllable internal risks • Operate with transparency to promote a good image of the organization

Stakeholder Group

Shareholders / Investors

Highlight

- Paid a total dividend of Baht 1.25 per share
- Book value per share of Baht 10.35 per share, an increase from Baht 10.28 per share in 2022

Stakeholder Group

Customers

Needs / Expectations

- Products and services meet the expectations
- Protect customer data and confidentiality
- Treat customers fairly and respect their rights

Engagement Channels / Frequency

- Customer relationship-building activities, customer satisfaction surveys, and online complaint channels
- Conduct training and seminars for customer companies that are ready

Benefits to Stakeholders

- Reliability in delivering high-quality products on time and in full quantity
- Meet expectations and communicate effectively
- Relationship-building activities and product recommendations

Highlight

- Customer satisfaction survey results at 87.4% satisfaction level
- 8 customer complaints were resolved and communicated to customers, accounting for 100% rate of complain resolved
- Zero product recalls for products that do not meet specified quality

Stakeholder Group

Civil Society / Academics / Media

Needs / Expectations

- Disclose information accurately, clearly, and in a timely manner

Engagement Channels / Frequency

- Notification to the Stock Exchange of Thailand and other regulatory agencies
- Company's press releases
- Opportunity Day meetings
- Phone number and email for investor relations to inquire about information

Benefits to Stakeholders

- Accurate and timely disclosure of information

Highlight

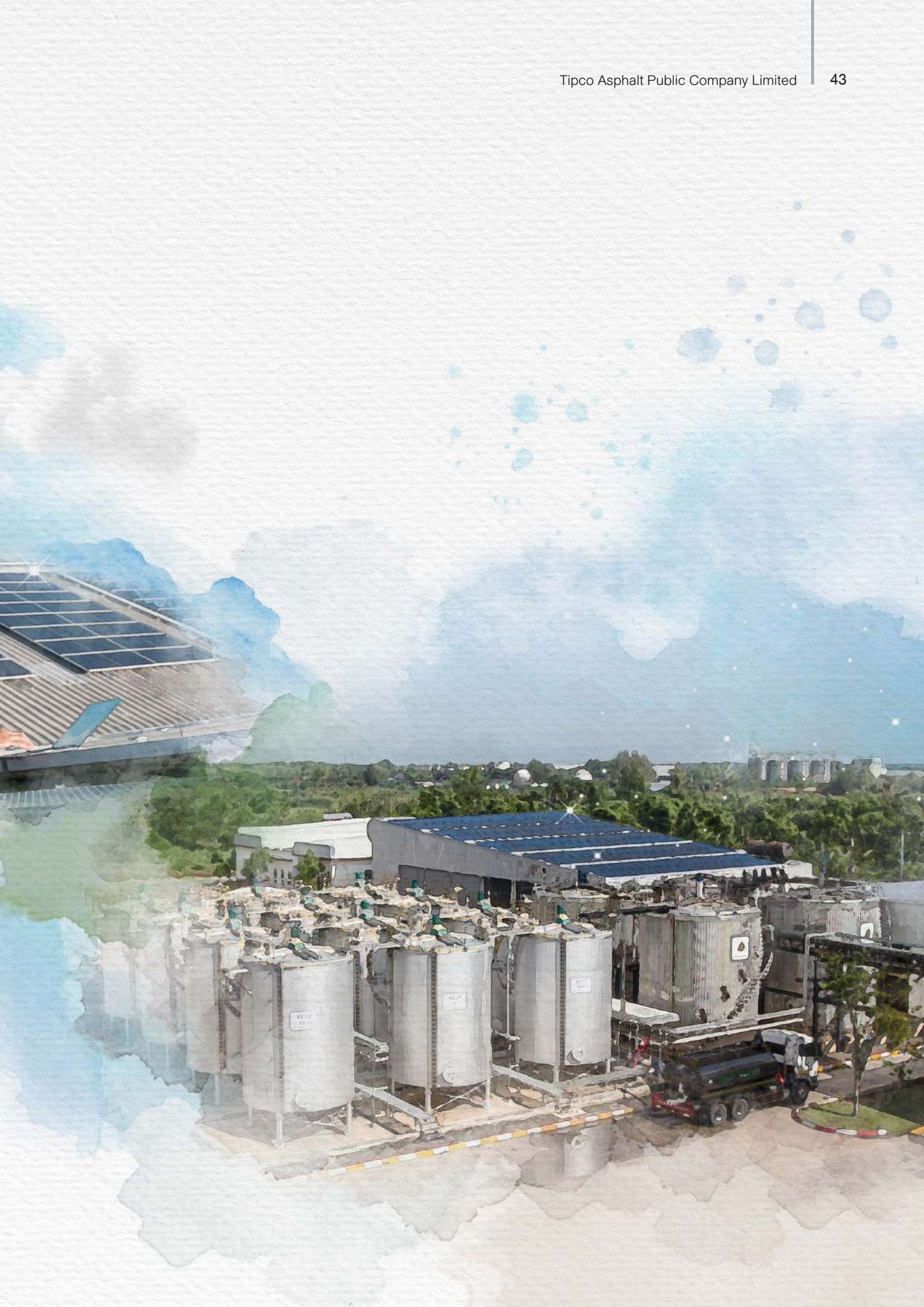
- Notification to the Stock Exchange of Thailand and other regulatory agencies as required by law
- Prepare press releases on regular basis
- Participate in Opportunity Day meetings 4 times a year
- Promptly respond to investor inquiries through investor relations channels

Stakeholder Group	Road Users / Communities
Needs / Expectations	<ul style="list-style-type: none"> • Community environment pollution free • Create educational and career opportunities for people in the community • Promote health, hygiene, and safe travel on roads
Engagement Channels / Frequency	<ul style="list-style-type: none"> • Dialogue sessions to listen to the opinions of communities and road users • Conduct overall satisfaction surveys through activities with the community • Open house project to visit the factory • Channels for receiving suggestions and complaints
Benefits to Stakeholders	<ul style="list-style-type: none"> • Cooperate and support to share knowledge and expertise • Sincerely listen to the needs and complaints of the community • Create innovations for high-quality road construction
Highlight	<ul style="list-style-type: none"> • The average result of the satisfaction survey for participating in community social activities is at 94.1% satisfaction rate • Zero (0) ESG complaints from the community and road users • 7 main social activity projects

Stakeholder Group	Business Competitors
Needs / Expectations	<ul style="list-style-type: none"> • Fair and transparent trade practices • Strict compliance with laws and regulations related to the business • Be a leader in innovation and create trends that will guide the industry
Engagement Channels / Frequency	<ul style="list-style-type: none"> • Exhibitions / academic conferences • Websites and various social media
Benefits to Stakeholders	<ul style="list-style-type: none"> • Fair and transparent competition, following the Group's Code of Ethics • Stimulate road construction to improve the quality and efficiency of products and services
Highlight	<ul style="list-style-type: none"> • Comply with the Code of Ethics • Comply with sales policies • Comply with innovation policies

KEY MATERIAL TOPICS FOR SUSTAINABILITY





Determining Key Material Topics for Sustainability

Tipco Asphalt Group places great importance on regularly reviewing and assessing sustainability development issues. In 2023, the Group reviewed the assessment of materiality for sustainability based on the results in the 2021 assessment coupling with risk factors from global and regional external situations, such as U.S. trade sanctions against Venezuela, which impacted on the crude oil sourcing for refineries in Malaysia, and severe natural phenomena resulting from climate change caused by fossil fuel emissions.

Furthermore, the Group also incorporated

national and international sustainability trends and developments into its considerations, such as SET ESG Rating by the Stock Exchange of Thailand, the United Nations' Sustainable Development Goals (SDGs), as well as internal organizational factors, including strategies, vision, executive insights, personnel development, and sustainability risk and opportunity management.

The Group conducts a systematic review of materiality for sustainability with four main stages as follows:

Step 1: Materiality Identification

The team conducted a comprehensive analysis to identify key materiality throughout the value chain of the organization. The analysis involved examining both external and internal factors, encompassing in-depth interviews with executives and relevant staff members. It also considered issues of stakeholder concern, covering environmental, social, and ethical dimensions of corporate governance to formulate a survey

Step 2: Interview

A thorough opinion survey was conducted among internal and external stakeholders, with each group comprising of 27 sample size. Deep-dive interviews were conducted through various channels, including online meetings, face-to-face discussions, telephone conversations, and emails.

Step 3: Assessment and prioritization

Assessment and prioritization of key material topics were carried out based on the impact and influence. The results were derived from impact to the Group and stakeholders. Such key materiality topics are for effective planning and implementation, ensuring maximum benefits and mutual cooperation among stakeholders, customers, and affected parties.

Step 4: Result verification

The sustainable and development team will present the assessment results to the Chief Executive Officer and Sustainable Development and Corporate Governance committee for approval.

This process enables companies to comprehensively identify and prioritize key material topics, ensuring suitability for effective management in the long term.

The result of the key material topics for the year 2023

Following the review by the management and sustainability working group, 11 key material topics have presented to the Sustainable Development and Good Corporate Governance Committee, which was delegated by the Board of directors for approval on October 25, 2023. Such 11 material topic in this report includes excellence in asphalt road surfaces, pollution and greenhouse gas management, effluents

and Waste Management/Spillage & Leakage, energy management, employee health and safety, participation in community and society development, risk & crisis management, government policies and budgets, cyber security, retaining potential employee & employee management, and training and education. This assessment was conducted based on the Global Reporting Initiatives (GRI) Standards framework.



Materiality Issues



Impact Level



These are crucial issues that both external and internal stakeholders agree on high importance and impact. These issues will be considered in the development of both short-term and long-term business plans.

Scope of the Report: The scope will be determined based on business relevance, data availability, and the impact on the operations of the

Group's main businesses, which include, asphalt products, base lubricants, transportation, construction, and other supporting businesses. The scope of reporting on occupational health, safety, and environmental performance data will cover only the business of Tipco Asphalt Public Company Limited. The data in this report focuses on 11 material topics.

Innovation Leader for 10X exponential economic growth

- 8) Foster innovation for Tipco Asphalt DNA
- 10) Excellence in asphalt road surfaces**
- 18) Environmental Friendly Products & Service Development

Eco-Efficiency Operations for a better Planet

- 2) Pollution and Greenhouse Gas management**
- 3) Effluent and Waste Management / Spillage & Leakage**
- 5) Energy Management**
- 7) Opportunities and Risks from Changes
- 15) Materials Management
- 21) Protection of the Environmental, Biodiversity and Restoration of Natural Habitats
- 30) Water management

Safety Awareness Better Safe than Sorry

- 11) Employee health and safety**
- 13) Safety during Transportation and Delivering Goods
- 19) Customers and Road User: Health and Safety

Good Corporate Governance for Strong Business Foundation

- 4) Risk & Crisis Management**
- 6) Good Corporate Governance, Transparency and Anti-Corruption
- 9) News, Communication and Corporate Reputation
- 12) Government Policies and Budgets**
- 16) Cyber Security**
- 17) Marketing and Labelling
- 20) Customer Centric
- 22) Customer Privacy
- 23) Fair Labor Practices
- 24) Participation in Community and Social Development**
- 26) Dialogue with Stakeholder
- 27) Fair Business Practices
- 28) Assessment of Social, Environmental, and Ethical Issues in the Supply Chain
- 29) Sustainable Supply Chain Management
- 32) Sustainable Purchasing
- 33) Respecting Human Rights
- 34) Procurement from Local Businesses

Value for The Future Be Ready for Change

- 1) Retaining Potential Employees & Employee Management**
- 14) Training and Education**
- 25) Diversity and Equal Opportunity
- 31) Employee Centric

Key Material Topics in Sustainable Development and Stakeholder Engagement in 2023

The Group places importance on engaging with each stakeholder group that is directly and indirectly related to its operations, enabling employees to work at full efficiency, and able to build customer engagement through good care and maintaining good relationships. The opinions on key materiality issues are the main components in determining the direction

of operations to develop the organization's sustainability. The Group communicates with stakeholders to acknowledge the key materiality issues that are interest in each stakeholder group and uses them as part of decision-making and planning process, as well as in the Group's business operations.



Innovation Leader

- Excellence in asphalt road surfaces

- Bringing reviews and feedback from customers and stakeholders for new products or services development, allowing business to meet their expectations. In addition, cooperation in an innovative manufacturing process among people in organizations, academics, students and related stakeholders also increase the potential organizational efficiency and steady growth based on sustainability.



Eco-Efficiency Operations (Environment)

- Pollution and Greenhouse Gas Management
- Effluents and waste management / spillage & leakage
- Energy management

- Manage risks to prevent and control pollution in business activities and take proactive action on requirements as prescribed in environmental laws and regulations
- Control the use of resources, reduce waste, and promote the recycling and reduce final disposal
- Increase energy efficiency and encourage alternative energy use in business processes



Safety Awareness (Social)

- Employee health and safety

- Create a safe working condition and processes for occupational health in the industry with a pleasant environment to increase in the efficiency of employees and stakeholders
- Committed to protecting employees, customers and communities through audit risk management and cyber security system



Good Corporate Governance

- Risk & crisis management
- Government policies and budgets
- Cyber security
- Participation in community development and society

- Focus on corporate risk management which may affect business strategies and operations along with creating value for the economy, society, community and environment












Value for the Future

- Retaining potential employees & employee management
- Training and education

- Emphasize customer- and employee-centered management to achieve efficiency maximization. As an effective human management creates a pleasant working condition, this assisted in strengthen business relationships with customers

Scope of Impacts from Key Materiality Issues to Stakeholders

Key materiality issues for sustainability	Scope of impact									Reference standard used in the Report			
	Internal to the Report organization	External to the in the Report organization								GRI	Standard	SDGs	Page
	 Board of Directors	 Employees	 Customers	 Suppliers	 Road Users/Communities	 Government Agencies	 Civil Societies/Academics/Media	 Shareholders/Investors	 Competitors				
Excellence in asphalt road surfaces	●	●								201	ISO 9001	SDG 9	55
Pollution and Greenhouse Gas Management	●	●	●	●	●	●				305-306	ISO 14001	SDG 12, 13	73
Energy management	●	●	●	●						302	ISO 14001	SDG 12, 13	87
Effluents and waste management/ spillage & leakage	●	●	●	●	●	●				305	ISO 14001	SDG 12	93
Employee health and safety	●	●	●	●						403	ISO 45001	SDG 3	101
Risk & crisis management	●	●	●	●	●	●	●	●	●	102	ISO 31000	SDG 11	119
Participation in community and society development	●	●	●	●	●	●	●			413	ISO 26000	SDG 3	126
Cyber security	●	●	●	●						102, 103	-	SDG 11	136
Government policies and budgets	●	●	●	●		●			●	102, 103	-	SDG 8	142
Retaining potential employees & employee management	●	●					●			401	TLS 8001	SDG 8	147
Training and education	●	●					●			404	TLS 8001	SDG 4	155

Tipco Asphalt Group: Sustainable Development Strategies

In accordance with the Mission and Vision 2025, Tipco Asphalt Group has defined six strategic objectives, which have been integrated into the organization's business strategies to achieve sustainable development goals. These strategic objectives are aimed at transforming the organization into a sustainable entity, outlined within the organization's strategy framework.

The Sustainability Development Framework of the Tipco Asphalt Group is a fundamental operating principle that specifies appropriate practices in accordance with international principles and standards to achieve the vision of sustainable development. The Group is committed to strengthening its long-term potential and performance through sustainable development with three sustainability strategies and principles:

1. Innovation Leader: Proposing new ideas and innovations to meet market demands and establish industry leadership.
2. Eco-efficiency Operations: Conducting business activities with an emphasis on resource efficiency and reducing environmental impact.
3. Safety Awareness: Creating a safe environment and promoting secure work within the organization.

These strategies are driven by two key principles of sustainable development:

1. Good Corporate Governance: Providing clear information and data to stakeholders and conducting activities in accordance with the principles and standards of good corporate governance.
2. Value for the Future - People Development: Developing and promoting employees to prepare for the organization's future and create value for sustainable personnel development.



G Green Industry
กระทรวงอุตสาหกรรม

ระดับ 5





TIPCO Asphalt Group Sustainable Development Milestones

Phase 1

Lay Foundation (2016-2018)

- Develop people, adding basic values to sustainability
- Good corporate governance, as foundation for sustainability
- Effective risk management, with execution according to plans
- Set of sustainable development goals and effective communication
- Enhance the organization's sustainability knowledge
- Education of the team understanding and progress towards common goals



Phase 2

Drive Sustainable Business (2019-2021)

- Create value for products and services by using creative innovation
- Improve the work processes to increase for business competency as well as reduce environmental impact
- Focus on raising awareness of the safety of stakeholders
- Disclose sustainability information transparently, build business confidence strong business alliance relationships
- Cultivate a sustainable DNA throughout the organization

- The Company was recertified with the Thai Private Sector Collective Action Against Corruption (CAC) membership for the first round

2020

2019

- Set mission and Vision 2025 in corporate vision
- Established a policy on Social Responsibility and Community Engagement
- The Group was awarded Sustainability Disclosure Award from Thaiapat Institute for the first time

2021

- Reviewed and enact a new Environmental policy that is consistent with the organization's sustainable development strategy plan
- ESG ratings from international rating organization such as S&P Global
- Implemented personal data protection as well as appointed a data protection officer, responsible Personal Data Protection Act (PDPA)
- Awarded Sustainability Award in the category 'Highly Commended'
- Reviewed of Human Rights Policy



Phase 3

Leverage on sustainability (2022-2025)

- Implement plans to continuously reduce Greenhouse Gas (GHG) through ongoing emission reduction efforts
- Long-term Greenhouse Gas Management plan
- Consider collecting analytical data on other import sustainability issues such as human rights, bio-diversity
- Formulate corporate strategic plan for the year 2030
- Expand the scope of work on sustainable development to other business groups and subsidiaries

- Be a learning hub and innovation leader in asphalt innovation for road construction, including new construction, road maintenance and advanced applications
- Build a sustainability alliance network with various organizations both domestically and internationally
- Participate in the sustainability assessments program of international credit rating agencies

2022

2023

- The Group created International Financial Reporting Standards IFRS S2 report: Climate-related Disclosures for the first time. The report includes climate-related financial disclosures on risks and opportunities per IFRS S2 standards.
- Has reviewed on the Climate Strategy
- Has expanded sustainable development practices to the Refinery, Marine, and Construction business
- The Company was recertified with CAC membership for the second round

INNOVATION LEADERSHIP

KEY STAKEHOLDERS



“ For 10x Exponential Economic Growth ”



KEY VALUE CHAIN



Key Risks and Opportunities:

- Risk of product substitution by better technology
- Risk of lacking knowledge transfer processes
- Opportunity to pass on knowledge and experience
- Risk in response to customer needs

Excellence in Asphalt Road Surfaces

Short-Term Goals in 2023

- Develop a learning system and bring work processes online, Asphalt Intelligence System platform
- Lead in providing Asphalt knowledge for road construction to customers and government agencies in needs through the technical service team
- Technical service satisfaction survey score $\geq 85\%$

Long-Term Goals in 2025

- Establish a training platform system for training courses/ programs and seminars for contractors and relevant parties, enabling interactive learning for both online and on-site 24/7
- Become a learning hub and a leader in asphalt road innovation, including new road construction, road maintenance, and advanced road applications



Scan QR code to Innovation policy



Scan QR code to Tipco Asphalt group cooperate innovation policy

Approach

Tipco Asphalt Group constantly develops and improve the quality of asphalt road products and services to suit the road applications according to international standards. We have collaborated with Colas Group, a French business partner leading in asphalt road technology and applications. Additionally, modern technology is applied to solve asphalt road surface usage issues, primarily focusing on safety.

In terms of education and human resource development, the Group recognizes the importance of personnel development and knowledge sharing. It is dedicated to supporting continuous educational activities, providing opportunities for government agencies, customers, students, to participate in training programs, research projects, or lectures by qualified engineers. Through these activities, personnel gain comprehensive knowledge of asphalt, from production processes, transportation, road construction to proper maintenance methods. This fosters an in-depth understanding and practical skills necessary for their work. By emphasizing continuous knowledge exchange, the Group aims to produce quality personnel capable of effectively applying their acquired knowledge to the development, construction, and maintenance of asphalt roads.

Regarding environmental conservation, the Group places great importance on environmentally friendly business operations, adopting the Circular Economy concept in its work processes. This involves recycling and reusing old asphalt concrete pavement from reclaiming existing road pavement through modern, eco-friendly recycling technologies. Not only does this method reduce the use of natural resources, but it also significantly reduces carbon dioxide and fine particulate matter (PM 2.5) emissions from the road construction process, aligning with the commitment to environmental preservation and clean air that supports the livelihood of communities.

With this dedication, the Group is confident in becoming a true leader in developing eco-friendly infrastructure, creating sustainable value for Thai society.

Key Performance Highlights

- The technical team organized 18 nationwide training sessions to provide knowledge on asphalt applications for road construction projects to customer, and 3 sessions for government agencies including Highway Office District 17 (Krabi), Rural Road Office District 6 (Khon Kaen), and Bangkok Metropolitan agencies. The average satisfaction rating from participants was 91.50%.
- There were 21 on-site advisory visits nationwide to assist in troubleshooting work issues. These visits focused on clarifying understanding and proper work procedures to ensure efficient and maximum road service life. The satisfaction rating for technical services was 87%.
- Knowledge, documentation and various asphalt concrete work standards were compiled into an online library called “Asphalt Intelligence System”. This system allows easy and convenient access to study and learn from any device. It compiles information ranging from products, material preparation, construction work, job roles, quality control and inspection, to ensuring work delivery meets government agencies’ standards. In the future, this system could be linked as a database for interested government agencies and educational institutions to develop and elevate workforce readiness for this industry.
- The system captures data on customers’ asphalt concrete production machinery (or hot mix plant) nationwide through a mobile application. This enables convenient service provision or recommendations of improving machinery efficiency. It can also assess the overall production capability of asphalt concrete in each area to analyze opportunities for future road construction and maintenance development regionally.



Uplifting the Safety in Road Surface Maintenance with the “Fibroseal” Technique

The Fibroseal paving technique is a cold-mix method using asphalt emulsion, which eliminates smoke and odors during construction, making it suitable for resurfacing roads in community areas.

Fibroseal Technique for increased Safety and Durability: The Tipco Asphalt Group is developing a new technique for road surface maintenance, “Fibroseal.” This is a micro-surfacing technique incorporates glass fibers with known for their high resistance to abrasion and temperatures. They enhance bonding and reduce aggregate loss, resulting in a stronger and more durable road surface.

In addition, the “Fibroseal” technique increases the skid resistance of the road surface, enhancing

driving safety for an extended period. It allows traffic to be reopened rapidly within just one hour.

Notable projects that the group have implemented this technique have helped reduce accidents, making it an innovation that improves safety and extends the service life of roads.

Moreover, the company remains committed to developing and adopting new techniques for efficient and environmentally friendly maintenance of transportation infrastructure.

Project Owner	Details	Contract Value (million baht)	Contract Start Date	Contract End Date
Expressway Authority of Thailand	Road resurfacing on Rama 9 Bridge, Chalong Rat Expressway for Dao Khanong - Tha Reua direction	12.5	Jun 17, 2023	Feb 11, 2024

Properties	Fibroseal
Cohesion Value:	
• At 30 minutes	> 15 kg.cm
• At 60 minutes	> 25 kg.cm
Greenhouse Gas Emissions of Asphalt Emulsion ^{1/}	Approximately 400 kg of CO2 per ton of product
Compared to Greenhouse Gas Emissions of Hot Mix Asphalt ^{1/}	Approximately 554-618 kg of CO2 per ton of product

Note:

^{1/} Referenced from the greenhouse gas emissions values of asphalt registered for the Carbon Footprint of Products (Carbon Label) by the Group with the Thailand Greenhouse Gas Management Organization (Public Organization) <https://thaicarbonlabel.tgo.or.th/index.php?lang=TH&mod=Y0hKdIplVmpkSE5mWVhCd2NtOTJZV3c9&keyword=%E0%B9%81%E0%B8%AD%E0%B8%AA%E0%B8%9F%E0%B8%B1%E0%B8%A5%E0%B8%95%E0%B9%8C>

Environmental - Friendly Products and Services

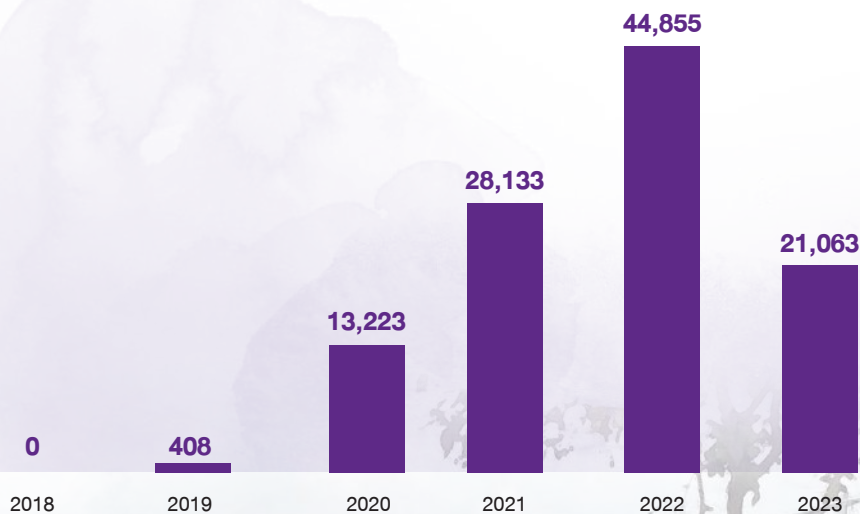
Asphalt Recycling Agent

Tipco Asphalt Group is committed to continuously developing and improving the quality of its products. We understand the importance of strengthening our customer base and meeting market demands. Among our key products, Asphalt Recycling Agent is one of them. Asphalt Recycling Agent plays a critical role both economically and environmentally. It is used to rejuvenate and improve the quality of deteriorated asphalt concrete from existing pavements, efficiently restoring it to meet specified standards.

Government agencies such as the Department of Highways and the Department of Rural Roads have mandated an increase in repair and maintenance projects using Reclaimed Asphalt Pavement (RAP) since 2020, to maximize the efficient utilization of natural resources.

However, in 2023, sales of Asphalt Recycling Agents declined significantly, mainly due to the entry of new competitors in the market, as well as delays in budget disbursements which slowed down product spending. This was the primary reason for the reduction use of RAP.

Reuse of recycled materials (Unit : Ton)



High Performance Pavement and PG 76

Apart from demonstrating innovation, the high-performance products of the Group must also have positive impacts on the economy, society, and environment.

The development of High Performance Grade (PG) asphalt aims to accommodate changing road conditions, such as increasing traffic volume and heavier loads, as well as rising temperatures. This necessitates the use of higher-performance grade asphalt.

The Company promotes the use of PG76 in High Performance Pavement (HPP) to resurfacing elevated roads in order to extend the road service life and reduces the frequency of repair and maintenance cycles.



The Growth of Asphalt Emulsion in Laos

Road construction and maintenance in Laos mainly involve the use of two types of asphalt products: asphalt cement and cut-back asphalt, which require high temperatures during the application process. These materials are predominantly used for Double Surface Treatment (DBST) in road surfacing techniques.

The Group has been promoting and encouraging the increased use of asphalt emulsion in Laos. We have advocated for the use of CSS-1 and EAP for prime coats instead of MC-70, and CRS-2 as a substitute for AC 80-100 for DBST. Furthermore, we established an asphalt emulsion production plant in Laos since 2018.



Project to Reduce the Use of Petroleum-Based Hydrocarbon Solvents in Asphalt Emulsion Products

Tipco Asphalt Group is committed and places importance on product development and continuous quality improvement to enhance the properties and performance of asphalt products and reduce product usage limitations. In response to the increasingly severe global climate change, which impacts businesses in many aspects, the Group sees an opportunity to develop new products and services.

The Group supports and drives product development and quality improvement to reduce environmental impacts and innovate low-carbon products. In the past, asphalt emulsion products have been developed to replace cut-back asphalt products that use a significant amount of petroleum-based hydrocarbon solvents. However, asphalt emulsion products still contain hydrocarbon solvents to some extent.

The Group, therefore, has a plan to reduce the amount of petroleum-based hydrocarbon solvents in asphalt emulsion products while maintaining product performance and properties according to the specified standards. From the improvement efforts, the amount of hydrocarbon solvent usage has been reduced by 10% from the previous ratio used in slow-setting asphalt emulsion product (CSS-1).

In 2023, the Group sold 10,338 tons of slow-setting asphalt emulsion products. These products are critical processes to protect and reinforce construction surfaces before proceeding to the next road engineering stage.

Furthermore, the Group is determined to find ways and possibilities to reduce or eliminate the use of petroleum-based hydrocarbon solvents in products, as well as continuously develop and improve low-carbon products.



Tipco Asphalt Public Company Limited partners with AI and Robotics Ventures to Develop “Materials Management Innovation” to uplift Road Construction into the Digital Era

Extensive Experience Integrated with Technological Expertise

Tipco Asphalt Public Company, a leader in asphalt products and road surfacing, is committed to continuous innovation development. Recently, it has jointly invested with AI and Robotics Ventures (ARV) a leading company in artificial intelligence and robotics, to establish Nila Solutions Co., Ltd. aiming to develop a “Materials Management Innovation” to uplift road construction into the digital era.

This innovation was conceived by combining Tipco Asphalt’s extensive experience in the road construction business with AI and Robotics Ventures’ cutting-edge technological expertise.

The design study commenced in 2022, and the official implementation commenced in August 2023.

Key Features of the Innovation:

- Efficient management of key construction materials: Enables contractors to control the deviation level of estimated material usage within an acceptable range, reducing waste costs from deviations.
- Increased work efficiency: Reduces time spent on collecting data on remaining construction material quantities, determines optimal inspection cycles for material inventory management and construction according to plans, ensures project completion on time, and minimizes environmental and community impacts.

- Reduced costs: Lower expenses related to project management and control in all aspects.
- Promotes sustainable business operations.

This innovation is a significant step in developing the road construction business. It enables contractors to work efficiently, accurately, quickly, and cost-effectively, benefiting businesses, the environment, and communities.

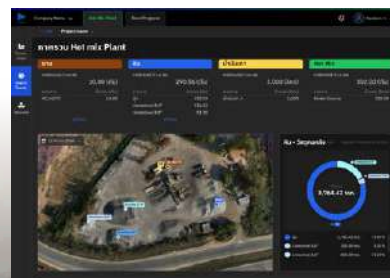
The Group is committed to continuous innovation development to uplift Thailand’s road construction standards to international levels.

Innovation Highlight

Control Deviation in Construction Material Estimation within 5% (from typical 10%)

Material Quantity Data Collection Time: 1-2 hours per survey round

Real-time Project Plan Monitoring and Reporting by Using Artificial Intelligence Analysis



You can scan QR Code to see Nila Solutions Company Limited.

Key Road Construction and Road Maintenance Projects

The Group is committed to comprehensive product and service development, including various road construction and road maintenance projects to continuously improve the quality of life for communities and ensure the safety of road users.

Investments in the construction business segment have strengthened the Group's capabilities in delivering value-added products and comprehensive services. The Group undertakes road construction and road maintenance projects for both public and private sectors. Additionally, it receives technical and technological support from Colas, a major shareholder and an expert in infrastructure construction projects such as roads, fostering collaboration in developing quality and suitable products.

In 2023, the Construction Business Segment proceeded as planned without significant disruptions, with enhanced safety and health measures implemented for employees. Currently, key projects within the Construction Business cover road surface improvement and road construction for improvements. Overall, the Construction Business continues to exhibit growth momentum.

As of the end of 2023, notable projects include: repair and renovation of Si Rat Expressway and Uttaraphimuk Elevated Expressway road surfaces, renovation of Burapha Withi Expressway traffic surface, sale of Asphalt Concrete Bound Base and Wearing Course (AC 40/50), pavement reconstruction project on Route 3609, Bang Wua - Bang Khwai section, Chachoengsao Province, asphalt concrete pavement reconstruction on Route Cho 4050, Ban Bang Khanak, Mueang District, Khlong Khuean, Bang Nam Prieo, Chachoengsao Province, asphalt surface rehabilitation on Route 3369, Wat Amphasiriwong - Klong 16 section, Nakhon Nayok Province, asphalt concrete pavement reconstruction on Route Por Tor 5021, intersection with Tetsaban Road, Bang Tha Khlong, Pathum Thani Province using recycling techniques, and more.



Key Road Construction and Road Maintenance Projects

1st Project

Project Name	Repair and Improvement of Road Surface on Si Rat Expressway, Si Rat-Outer Ring Road Expressway, and Udon Rattahaya Expressway
Project Duration	April 20, 2023 - June 30, 2024
Project Progress	In progress
Project Details	Maintenance and improvement of structures and systems on Si Rat Expressway, Si Rat-Outer Ring Road Expressway, and Udon Rattahaya Expressway
Project Value (Baht)	150,351,980

2nd Project

Project Name	Improvement of Road Surface on Burapha Withi Expressway
Project Duration	January 13, 2023 - December 8, 2023
Project Progress	Completed
Project Details	Improvement of road surface on Burapha Withi Expressway km.35+000 - km.55+000
Project Value (Baht)	73,743,200

3rd Project

Project Name	Sale of Asphalt Concrete Bound Base and Wearing Course (AC 40/50)
Project Duration	March 20, 2023 - December 31, 2023
Project Progress	Completed
Project Details	Sale of Asphalt Concrete Bound Base and Wearing Course (AC 40/50) to Thipakorn Co., Ltd. for the Nakhon Sawan-Chaiyaphum Route 225 project, Ban Khwao-Chaiyaphum section
Project Value (Baht)	122,900,500



Road Surface Rehabilitation and Improvement Projects with Pavement In-Place Recycling Technique

1st Project

Project Name	Asphalt Surface Rehabilitation on Route 3609, Bang Wua - Bang Khwai Section, Chachoengsao Province
Amount of materials recycled in new road construction	3,520 cu.m.
Type of recycled materials in new road construction	Crushed rock 10 cm thick, existing pavement 10 cm thick
Value (Baht)	1.34 million
Amount of crushed rock recycled in construction	1,760 cu.m.
Type of recycled materials in construction	Crushed rock
Value (Baht)	0.67 million



2nd Project

Project Name	Asphalt Concrete Pavement Repair and Build on Route Chachoengsao 4050, Ban Bang Khanak, Mueang District, Khlong Khuean, Bang Nam Prieo, Chachoengsao Province
Amount of materials recycled in new road construction	5,500 cu.m.
Type of recycled materials in new road construction	Crushed rock 15 cm thick, existing pavement 5 cm thick
Value (Baht)	2.09 million
Amount of crushed rock recycled in construction	4,125 cu.m.
Type of recycled materials in construction	Crushed rock
Value (Baht)	1.56 million



3rd Project

Project Name	Asphalt Surface Rehabilitation on Route 3369, Wat Ampha Siriwong - Khlong 16 Section, Nakhon Nayok Province
Amount of materials recycled in new road construction	3,300 cu.m.
Type of recycled materials in new road construction	Crushed rock 10 cm thick, existing pavement 10 cm thick
Value (Baht)	1.26 million
Amount of crushed rock recycled in construction	1,650 cu.m.
Type of recycled materials in construction	Crushed rock
Value (Baht)	0.63 million



4th Project

Project Name	Asphalt Concrete Pavement Repair and Build on Route Pathum Thani 5021, Intersection with Bang Tha Khlong Municipal Road, Pathum Thani Province
Amount of materials recycled in new road construction	2,408 cu.m.
Type of recycled materials in new road construction	Crushed rock 10 cm thick, existing pavement 10 cm thick
Value (Baht)	0.92 million
Amount of crushed rock recycled in construction	1,204 cu.m.
Type of recycled materials in construction	Crushed rock
Value (Baht)	0.46 million





Global Innovation Partner for Sustainable Mobility Solutions

Developing sustainable mobility solutions is designed by considering the modes of travel, transportation methods, and related infrastructure as key factors. Colas, with over 90 years of innovation heritage, offers new solutions for transport infrastructure, including introducing novel mobility solutions to ensure that rural accessibility and area development can occur while protecting the surrounding environment.

Such development cannot happen without the innovative mindset of the employees, which is a driving force for the Group. Creating mobility innovations means recognizing our role in serving people and the planet, ensuring that development in one area does not adversely impact another. We must all participate in this endeavor so that we can progress together.

Increased mobility, reduced impact, development and promotion of low-carbon solutions

Everyone having a way forward does not mean sacrificing mobility. On the contrary, mobility without responsibility, restraint, resource conservation, and protection of land and eco systems is unsustainable.

The Company's goal is not merely to deliver more efficient transportation solutions, but solutions that are fair, appropriate, and equitable for everyone. Innovation must answer the question, "How can

we improve the way we travel?" The answer lies in devising solutions with low-level impact, transforming and interconnecting various types of infrastructure that support all forms of transportation.

Leveraging new materials, promoting preventive maintenance to extend the life of existing infrastructure, and striving to make our solutions reusable are key strategies.

Examples of Solutions

Wattway Photovoltaic Road Surfacing

Wattway is a patented French innovation resulting from over five years of research by Colas and INES, the French National Solar Energy Institute. This solution is an electric road surface system that generates electricity from clean, renewable solar energy while creating a safe road surface for all types of vehicle traffic.

Since the launch of the photovoltaic road solution, 50 pilot projects have been implemented worldwide, demonstrating the acceptance of Wattway.

- Powering streetlights and urban equipment in France and the United Kingdom
- Supplying power to electric vehicle charging points
- Serving as a backup energy source for buildings in France, Reunion Island, Canada, the United States, Japan, and Luxembourg



- These projects vary in size and have been developed to test various applications. Providing power to local electrical grids in France and the Netherlands

These experiments were conducted under real-life conditions in various scenarios, resulting in efficient development and flexibility. In 2019, Colas began marketing the Wattway Pack, a comprehensive solution that enables various roadside equipment to operate autonomously.

Vegecol - Low Carbon Mix



Vegecol is a mix created using plant-based binders. It has transparent properties that allow the color of the mixed materials to show through without the need for surface treatment. Vegecol is an ideal solution for car-free areas such as sidewalks and bicycle paths. Moreover, Vegecol blends seamlessly with the environment, enhancing the appeal of various locations like city squares, historical sites, pedestrian zones, and networks of protected natural areas within the European Union.

Vegecol has been certified as a four-star biobased product, meaning that it has a biobased carbon content of over 80%. Due to its ability to store carbon dioxide, using this binder for asphalt production aligns with strategies to reduce carbon dioxide emissions.

Qievo - Regulation of Logistics Flows in Urban Areas

Construction sites in cities have a poor image; they seem to be everywhere, obstruct traffic, are noisy, and appear to be a permanent fixture. As Colas' main business is road construction, the company faces these issues daily. Poor management and uncontrolled movement processes at construction sites negatively impact urban traffic. To meet the expectations of users and local authorities, Mobility by Colas developed Qievo, a digital service that optimizes movement around construction sites in densely populated urban areas.

- Traffic around construction sites is more fluid due to better management
- Inconvenience to users is limited by requiring trucks to use designated routes to avoid traffic congestion
- An efficient and reliable system is provided to manage deliveries and equipment use, facilitating the movement of goods at construction sites
- Efficient management tools and insights are provided to administrative and traffic management authorities



Creating Innovations for Sustainable Road Management

Good innovations must consider the lifecycle of infrastructure and integrate with road infrastructure management. Innovations must ensure that users receive efficient and sustainable services while helping managers improve maintenance efficiency and investment budgets, as well as reduce greenhouse gas emissions simultaneously.

To monitor maintenance needs for infrastructure as closely as possible and understand in-depth information about the areas where the company operates, Colas has launched new innovative services that combine monitoring, inspection, data collection, data processing, planning, performance tracking,

construction operations, maintenance, and solutions for recyclable infrastructure at the end of its life.

These innovations have several advantages:

- Financial – Assists reduce maintenance costs and extend maintenance intervals, positively impacting financial planning
- Organizational – Gains better understanding of road infrastructure and user needs
- Environmental – Offers cost-effective, sustainable solutions and adjusts work schedules appropriately, helping to reduce greenhouse gas emissions

Examples of Solutions

ANAIS

ANAIS (Acquire-Digitize-Analyze-Inform-Secure) is a solution created for general administrative departments in France, enabling them to anticipate the maintenance needs of their road networks and efficiently manage and adjust infrastructure costs.

- Enhances the safety of road section surveys
- Acts as a virtual companion in providing the best information to road users
- Monitors returns on investment
- Focuses on preventive measures rather than corrective measures



Recycol® - Road Recycled In-Place

Recycol is a process for recycling deteriorated or expired road surfaces. The existing materials are crushed and mixed with a binder, then relaid and compacted using specialized Recycol machinery. Recycol is a sustainable solution aimed at extending the service life of existing road infrastructure while

conserving resources. The road section is surveyed and preliminarily studied to determine the best approach to achieve equivalent performance to conventional resurfacing methods. Recycol is suitable for road surface courses and bases of all road types.

2IN - Regional Digital Twin

2IN serves as a mapping platform covering data on buildings, roads, underground infrastructure, etc. Additionally, the platform helps calculate construction costs, set preliminary timelines, simulate usage scenarios, safety measures, and schedule maintenance programs, etc. The valuable insights from 2IN benefit not just construction teams but also

local authorities and anyone involved in local and regional development projects.

How Does Understanding Networks and Infrastructure Benefit?

Stakeholders can respond more rapidly to emergencies, increase project efficiency with limited budgets, design more sustainable projects, and more.



Public Spaces to Promote Social Interaction

Innovation requires change to succeed, so there are opportunities to face various challenges, which are the foundation for growth. Public spaces and roads are fundamental places where people meet and share. Therefore, our approach to creating innovation

will reflect our philosophy: an open and inclusive concept of the stakeholder ecosystem. We support and promote innovation and participate in projects that help improve public spaces, resulting in shared mobility and tangible development on a larger scale.

The Core Center for Product and Technology Design and Development

The Core Center, located in Paris, is responsible for designing and developing products and technologies that address prioritized energy transition issues, as well as new usage patterns. As the company's world-leading private research and development center, our mission is to provide high-level technical support and expertise to our subsidiaries in both product and process development through the integration of Mobility solutions with infrastructure projects.

In collaboration with the Group's regional laboratories located in every region where Colas operates, the Core Center's primary role is to conceptualize various products, techniques, and infrastructure solutions for development and testing. Additionally, the Core Center serves as a hub for all of the Group's knowledge and expertise, as well as coordinating with various technical networks. The role of the Core Center, which employs approximately one thousand people, is to deliver quick solutions to field operations daily.



Open Innovation to Promote Collaborative Innovation

The Group has applied open innovation to key stakeholders in the ecosystem (including industrial partners, SMEs, and innovative startups) with the goal of developing joint innovation projects. This collaborative approach takes place on two levels: joint development of innovative solutions, including on-site testing, and investment to strengthen cooperation through the CIB Development fund, which is a minority shareholder in innovative startups working with Colas.



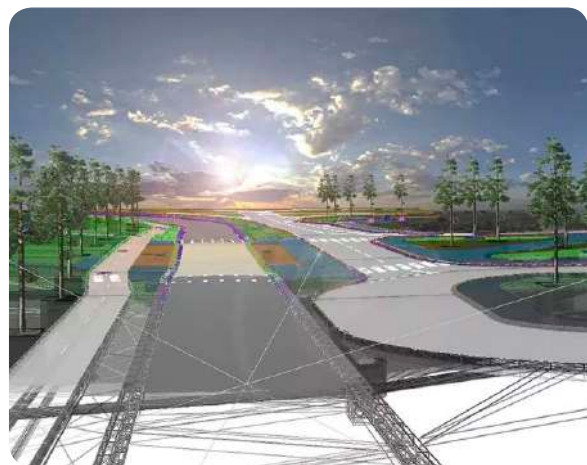
Colas has developed collaborations with many sectors, both in France and worldwide, to share knowledge and expertise and help the business stay ahead of the curve.

- Academic partnerships to collaborate on science, research, and development with schools, universities, public enterprises, industry groups, etc.
- Collaborations with startup incubators such as Via ID (innovative mobility solutions)
- Collaborations with startups on innovation projects, including RB3D (exoskeletons), Dawex (data exchange platform), WiseBIM (Grid2BIM solutions), Apilab, and BeeOdiversity (bee conservation)
- Collaborations with other large companies in various industries, including Michelin (recycling and future road usage) and Volvo (safety systems for construction machinery)
- Collaborations with innovative and competitive companies in the construction industry, including Construct Lab, Cap Digital, Lyon Eurêka Confluence, and Transpolis

Building Information Modeling (BIM) Collaborative Projects

The company is recognized as a leader in the application of BIM technology for infrastructure, where the company, clients, and other stakeholders involved in the project can share information throughout the project's lifecycle via a digital platform. This not only enhances the efficiency of the design and preparation stages but also includes construction, maintenance, and even the dismantling of structures.

In addition to preparing for tenders, BIM is developing several projects, such as 2IN, which is the creation of a City Information Model (CIM) for sharing technical data about assets.



ECO-EFFICIENCY OPERATIONS

KEY STAKEHOLDERS



“ For Better Planet ”



Key Risks and Opportunities:

- Opportunities for efficient utilization of fuel and electricity
- Risks associated with technology for renewable energy
- Risks related to climate change
- Risks from natural disasters
- Risks in technology and people capability
- Risks from changing laws and regulations
- Risks from inhaling vapors and chemicals
- Risks from exposure to heat and loud noise

Pollution and Greenhouse Gas Management

Short-Term Goals in 2023

- Reduce the rate of greenhouse gas emissions (Scope 1 and 2) per ton of production by at least 4% compared to base year 2020
- The measurement of air pollution, wastewater discharge, and noise to be within standard criteria and comply with relevant legal or requirement
- No environmental complaints

Long-term Goals for 2025

- Reduce greenhouse gas emissions per ton of production (Scope 1 and 2) by at least 6% by 2025 compared to base year 2020
- Consider the disclosure of greenhouse gas emissions, Scope3, by 2025
- Set a goal for every community to be free from small dust problems
- No environmental complaints.



You can scan the QR Code to access and view the environmental policy.

Management Approach

Tipco Asphalt Group recognizes the severity of the global warming crisis and climate change, which affect the quality of life of people worldwide. Therefore, the Group has established Sustainability Development policy and Environmental and Climate policy, aiming to conduct business sustainably while managing environmental and climate impacts throughout the value chain.

The Group places importance on reducing the impacts of its operations, products, and services, and is committed to controlling the increase in the average temperature worldwide not exceeding 1.5 degrees Celsius, in accordance with the Paris Agreement. The Group conducts its business responsibly, considering the impacts and opportunities related to climate change throughout the value chain, and adheres to relevant standards and guidelines such as ISO 14064-1, ISO 14064-3, and the Greenhouse Gas Protocol (GHG Protocol) to reduce greenhouse gas emissions from its business operations in line with the organization's goals.

This includes supporting research and development of eco-friendly innovations, increasing energy efficiency, and promoting the use of alternatives and renewable energy, such as projects to improve the insulation of product storage tanks, Just-in-Time (JIT) production process management projects, and LED Solar Lighting installation projects. In addition, the Group also implements projects to support low-emission activities (Low Emission Support Scheme: LESS).

In 2023, the Tipco Asphalt Group revised its Environmental and Climate policy by establishing climate strategies to manage and reduce greenhouse gas emissions from direct (Scope 1) and indirect (Scope 2) business processes, as well as setting long-term reduction targets. This also includes protecting and conserving ecosystems and biodiversity, aiming to create a net positive impact on biodiversity in order to balance nature and future generations.

The Group discloses its climate performance to the public in accordance with standards IFRS S2. Disclosure of Greenhouse Gas emission data from its domestic asphalt production business and head office was verified for its sources, recording methods, and calculations by the Management System Certification Institute (Thailand), an affiliated institute of the Ministry of Industry (MASCI).

In 2024, the Group has set a target to reduce greenhouse gas emissions (Scope 1 and Scope 2) by at least 36% compared to the base year 2020, by 2030. This target encompasses only the greenhouse gas emissions from the asphalt business in Thailand.

Key Results

- The rate of greenhouse gas emission per ton of production (Scopes 1 and 2) was 0.021 tons of carbon dioxide equivalent per ton of production, a 32.71% decrease compared to 2020, achieving both short-term and long-term targets.
- Direct greenhouse gas emissions (Scope 1) were 10,255 tons of carbon dioxide equivalent, a reduction of 4,904 tons of carbon dioxide equivalent compared to 2020.
- Indirect greenhouse gas emissions (Scope 2) were 1,602 tons of carbon dioxide equivalent, a reduction of 513 tons of carbon dioxide equivalent compared to 2020.
- Total greenhouse gas emissions (Scope 1 and Scope 2) was 11,856 tons of carbon dioxide equivalent, a reduction of 5,418 tons of carbon dioxide equivalent compared to 2020.
- Pollution measurements across various aspects better than the standards mandated by relevant laws or regulations, such as air pollution, wastewater discharge, and noise.

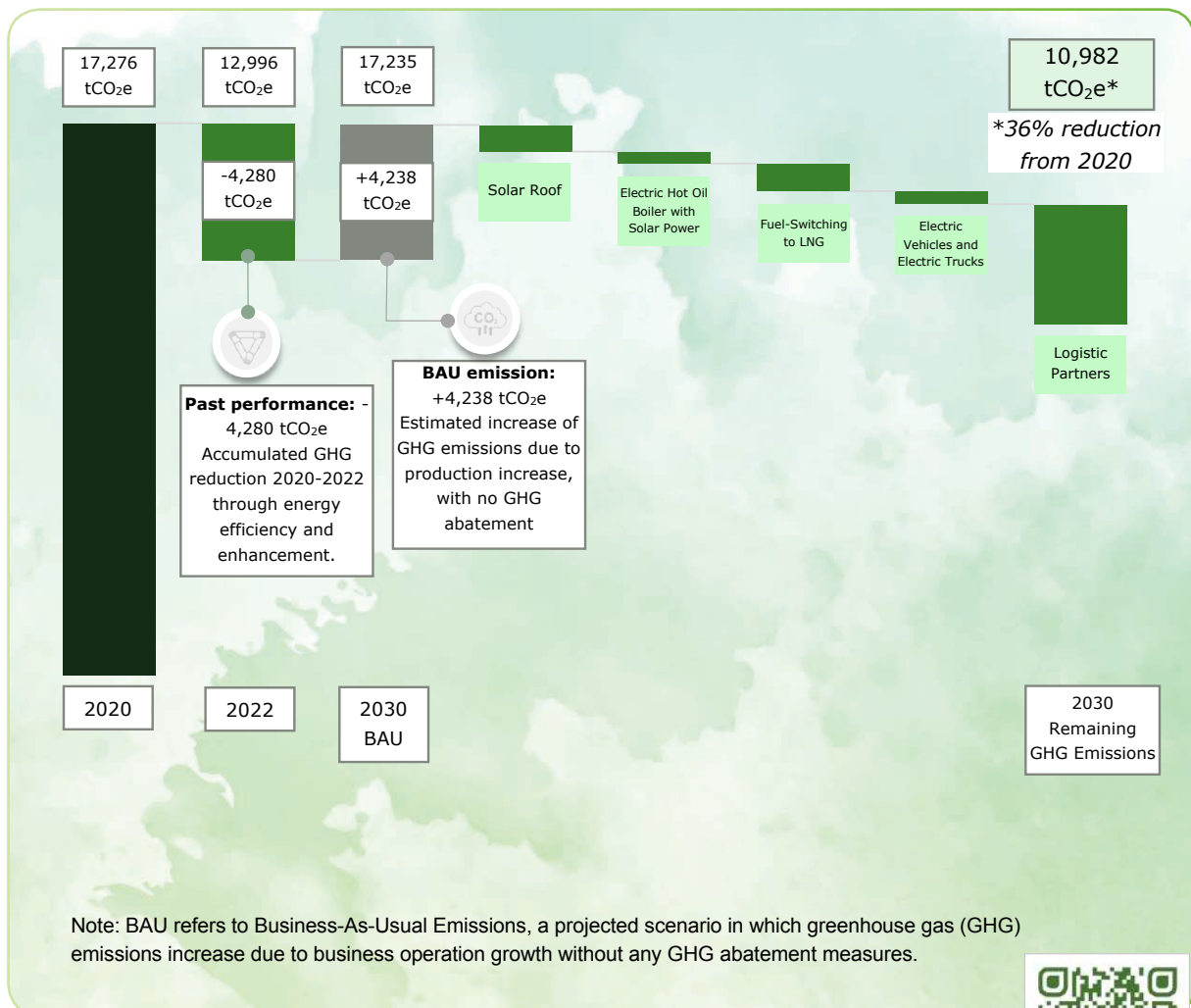


Climate Management

Reduction in greenhouse gas emissions is a key goal for the Group. The target has been clearly set to reduce greenhouse gas emissions (Scope 1 and Scope 2) by at least 36% compared to the base year 2020 by 2030 for the asphalt business in Thailand only.

Implementing such a strategy demonstrates the Group's commitment to minimize its environmental impact and align with current consumer trends placing greater importance on environmental conservation. Moreover, transitioning to more efficient production processes and resource utilization will enable the Group to reduce costs and enhance its long-term competitiveness.

Climate Strategy and Greenhouse Gas Emissions Reduction 2020-2030



Note: BAU refers to Business-As-Usual Emissions, a projected scenario in which greenhouse gas (GHG) emissions increase due to business operation growth without any GHG abatement measures.



You can scan the QR Code to access the IFRS Sustainability Report for the Group.

Climate Strategy



Solar Rooftop

The Group plans to make substantial investment in renewable energy through installing of solar rooftops at its manufacturing plants in Thailand. This project serves as a step towards achieving energy dependence. The solar rooftops will harness sunlight to generate electricity, reducing reliance on conventional power sources which results in a more sustainable energy mix.

Electric Vehicles and Electric Trucks

The Group aims to transition its fossil fuel-based vehicles to electric vehicles (EVs) including its own-operated trucks. This commitments set a good practice for sustainable mobility among peers.



Fuel Switching to LNG

To further enhance the sustainability of its business operations, the Group will invest in a fuel-switching project from diesel to liquefied natural gas (LNG) for its hot oil heater system. This project also aligns with a push towards cleaner and more sustainable fuels.



Electric Hot Oil Boiler with Solar Power

The Group plans to reduce greenhouse gas emissions by replacing its diesel hot oil boiler unit with an electrical hot oil boiler unit. By using electricity for the heating system in the production process, the Group can eliminate GHG emissions associated with traditional heating methods that use diesel as a fuel source. To further reduce reliance on the electrical grid, the Group will also invest in solar power to generate solar energy for the electrical hot oil boiler.

Logistics Partner Expert

As part of the supply chain optimization initiative, the Group will be able to reduce part of its Scope 1-2 GHG emissions by leveraging like-minded specialized logistic partners to effectively and efficiently manage product deliveries and associated emissions.

The Group recognizes that logistic-associated emissions of the partners will fall under indirect Scope 3 GHG emissions of the Group, and confirms that the Group will do everything possible to reduce such emissions by means under its control, e.g. by selecting logistic partners that can service with electric or fuel-efficient trucks.



Reforestation

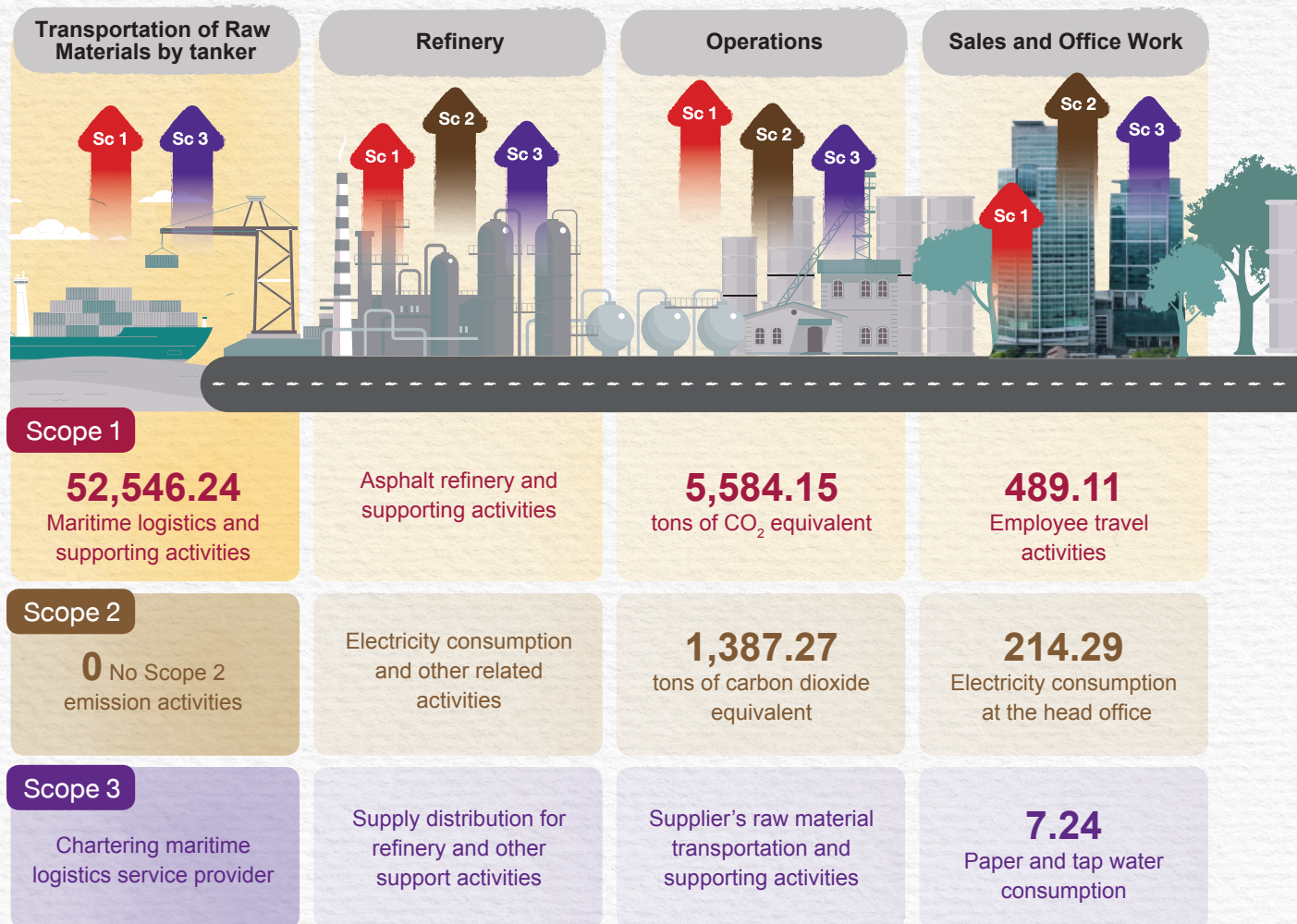
For the past several decades, the Group has implemented various afforestation projects to increase and restore forest areas. In continuation with this aim, a key afforestation strategic project was developed as a major step forward, starting in 2024 and completed by 2033 with the planting of 120,000 trees. The annual GHG emissions reduction from the project is estimated to be 1,140 tCO₂e per year. While afforestation plays a vital role in neutralizing the Group’s residual GHG emissions in supporting Thailand’s NDC, it will not be accounted for in the GHG emission reduction targets for 2030.

Greenhouse Gas Management Throughout the Value Chain

Tipco Asphalt Group recognized that it contributes to environmental impacts from greenhouse gas emissions across all activities throughout its business value chain. This includes greenhouse gases emitted from using fuel for transporting raw materials, petroleum refining, product manufacturing and providing services to customers that require electricity or fuel usage. It also covers the use of various chemicals in production, fuel consumption from transportation of goods to customers, as well as fuel usage by customer contractors in road construction projects utilizing the Company's products. Therefore,

the Group collects and analyzes greenhouse gas emissions data throughout its business value chain in order to continuously formulate its organizational greenhouse gas management plans. In 2023, the organization expanded the reporting scope of Scope 1 and 2 greenhouse gas emissions for its construction business segment to cover fuel or energy use at the Bang Prakong production plant, Wang Noi production plant, and Suvarnabhumi Airport Runway surface maintenance project, as well as the Suvarnabhumi Airport 3rd Runway construction project, as follows:

Business Operations

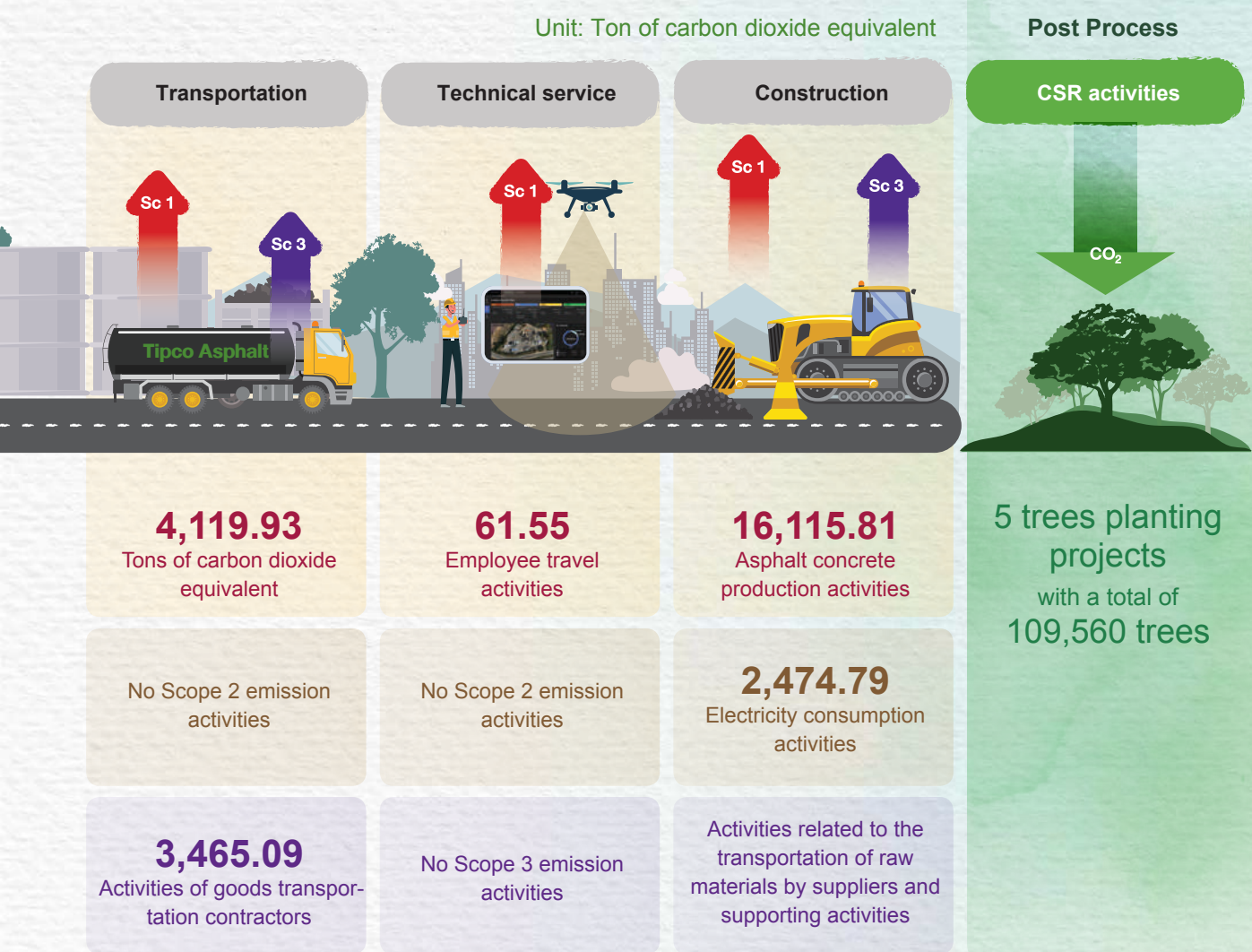


Greenhouse Gas Emissions Data from the domestic business and Head Office in the Report were verified for source, recording method, and calculation by the ISO-Accredited Institution, Industrial Development Foundation, Ministry of Industry's Networking Institution (MASCI).

The calculation of Scope 1 and 2 greenhouse gas emissions utilized the greenhouse gas Emission Factor announced in the latest Notification of the Thailand Greenhouse Gas Management Organization dated April 1, 2022. The Group has adjusted the

calculations using these factors from the base year up to the present year (2020-2023) for consistency and ease of analysis and comparison.

For Scope 3 greenhouse gas emissions data, the calculations employed the greenhouse gas emission factors according to the latest Notification of the Greenhouse Gas Management Organization (Public Organization) dated January 1, 2023. However, this data has not yet undergone third-party verification and certification.



Greenhouse Gas Emissions (Ton of Carbon Dioxide Equivalent) by Groups

The Tipco Asphalt Group is committed to continuously carrying out environmental and climate-related operations. In 2023, the Group implemented various projects to reduce greenhouse gas emissions, energy consumption, and production process losses, as well as to increase production efficiency. These projects include upgrading the insulation of product storage tanks to reduce the rate of heat energy loss from products to the atmosphere, managing the just-in-time production process, and installing LED Solar Lighting to illuminate roads and office buildings. As a result, the actual intensity of greenhouse gas emission (Scope 1 and 2) per ton of production achieved both short-term and long-term goals as follows:

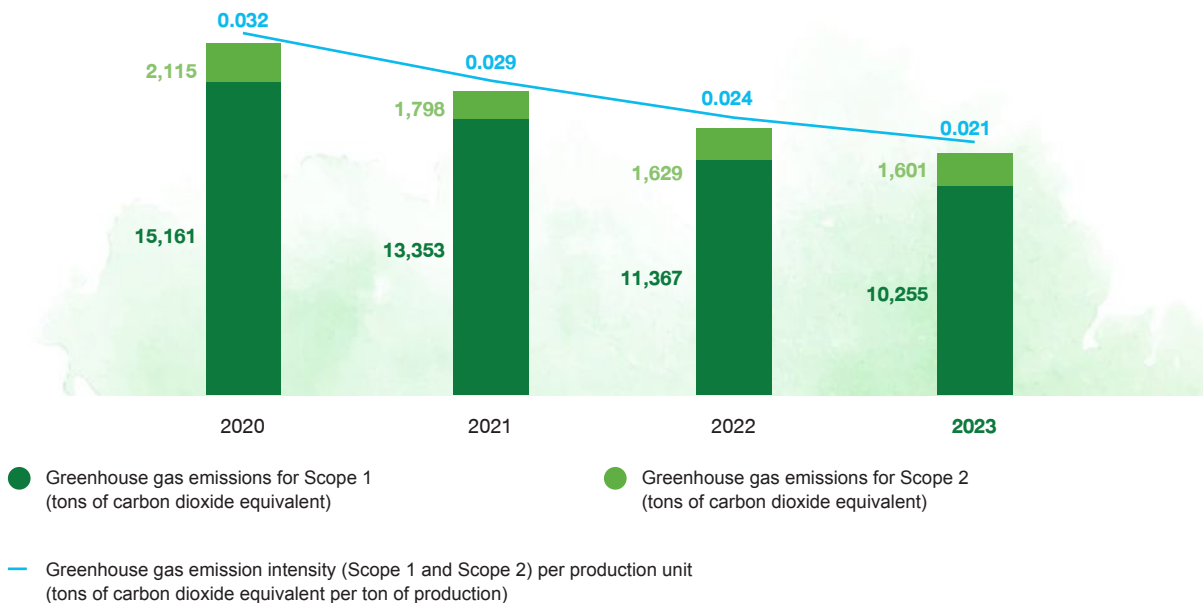
- The greenhouse gas emissions for scope 1 and scope 2 intensity per production unit was 0.021 tons of carbon dioxide equivalent per ton of

production, a decrease of 32.71% compared to the base year 2020.

- The total greenhouse gas emissions for scope 1 and scope 2 of the asphalt production and distribution business group in Thailand and the head office were 11,856 tons of carbon dioxide equivalent, a decrease of 5,418 tons of carbon dioxide equivalent compared to the base year 2020.
- The greenhouse gas emissions for scope 1 were 10,255 tons of carbon dioxide equivalent, a decrease of 4,904 tons of carbon dioxide equivalent compared to 2020.
- The greenhouse gas emissions for scope 2 were 1,602 tons of carbon dioxide equivalent, a decrease of 513 tons of carbon dioxide equivalent compared to 2020.

Domestic Asphalt Production Business and Head Office

The target for total net greenhouse gas emissions for Scope 1 and Scope 2 in 2023 is 16,583.63 tons of carbon dioxide equivalent.



Construction Business

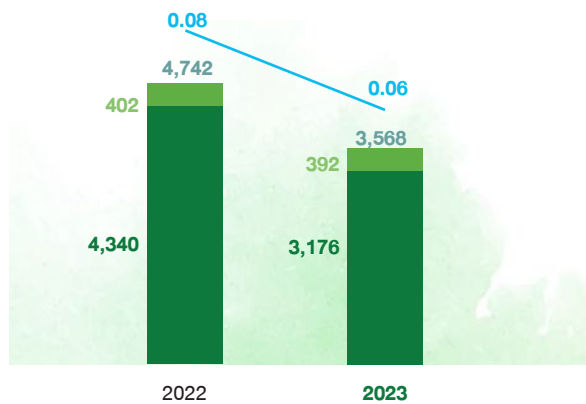
Tipco Asphalt Group supports and drives the Construction Business to carry out environmental and energy efficiency measures by adopting modern and efficient technology and machinery to minimize energy consumption and greenhouse gas emissions in parallel with improving work processes for greater efficiency.

In 2023, the Group collected data on fuel and energy consumption in the Construction Business, covering fuel or energy use in two Hot Mix production plants for road paving: Bang Pakong Plant and Wang Noi Production Plant, as well as three road construction and repair projects: Suvarnabhumi Airport Runway Repair Project, Suvarnabhumi Airport

Third Runway Construction Project, and Highway 205 Thep Sathit Construction Project. This data was used to analyze energy consumption and greenhouse gas emissions from related activities in Scope 1 and Scope 2. The summary of greenhouse gas emissions (tons of carbon dioxide equivalent) of the Construction Business is as follows:

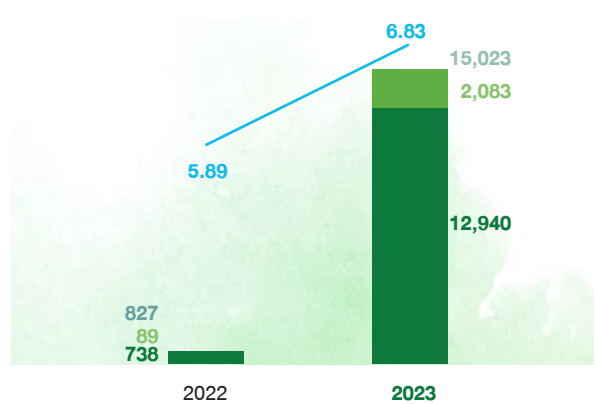
- Total greenhouse gas emissions for scope 1 and scope 2 were 18,591 tons of carbon dioxide equivalent.
- Greenhouse gas emissions for scope 1 were 16,116 tons of carbon dioxide equivalent.
- Greenhouse gas emissions for scope 2 were 2,475 tons of carbon dioxide equivalent.

The greenhouse gas emissions (tons of carbon dioxide equivalent) for Hot Mix production plants for road paving



- Greenhouse gas emissions for Scope 1 (tons of carbon dioxide equivalent)
- Greenhouse gas emissions for Scope 2 (tons of carbon dioxide equivalent)
- Greenhouse gas emission intensity (Scope 1 and Scope 2) per production unit (tons of carbon dioxide equivalent per ton of production)

The greenhouse gas emissions (tons of carbon dioxide equivalent) for road construction and maintenance projects



- Greenhouse gas emissions for Scope 1 (tons of carbon dioxide equivalent)
- Greenhouse gas emissions for Scope 2 (tons of carbon dioxide equivalent)
- Greenhouse gas emission intensity (Scope 1 and Scope 2) per production unit (tons of carbon dioxide equivalent per total revenue (million baht))

Note: In 2023, the Construction Business Group included additional data on greenhouse gas emissions from the Suvarnabhumi Airport Third Runway Construction Project and Highway 205 Thep Satit Construction Project.

Marine Business

The maritime transportation industry is facing a significant challenge as the International Maritime Organization (IMO) introduces stricter measures to reduce pollution from ocean-going vessels. The Group recognizes the need to adapt and prepare for this change and has been proactively implementing operational and technical measures with its fleet continuously.

Impressive results: currently, the Group's fleet has achieved the goal of having the Energy Efficiency Existing Ship Index (EEXI) and Carbon Intensity Indicator (CII) values within a highly efficient range, which not only helps reduce greenhouse gas emissions but also reflects the commitment to sustainable business operations according to international standards.

Getting to know EEXI and CII: EEXI: An energy efficiency index specifically calculated for each existing vessel by calculating the amount of CO₂ emissions from the vessel in grams when the vessel transports 1 ton of cargo per 1 nautical mile. It applies to vessels of 400 GRT and above operating internationally.

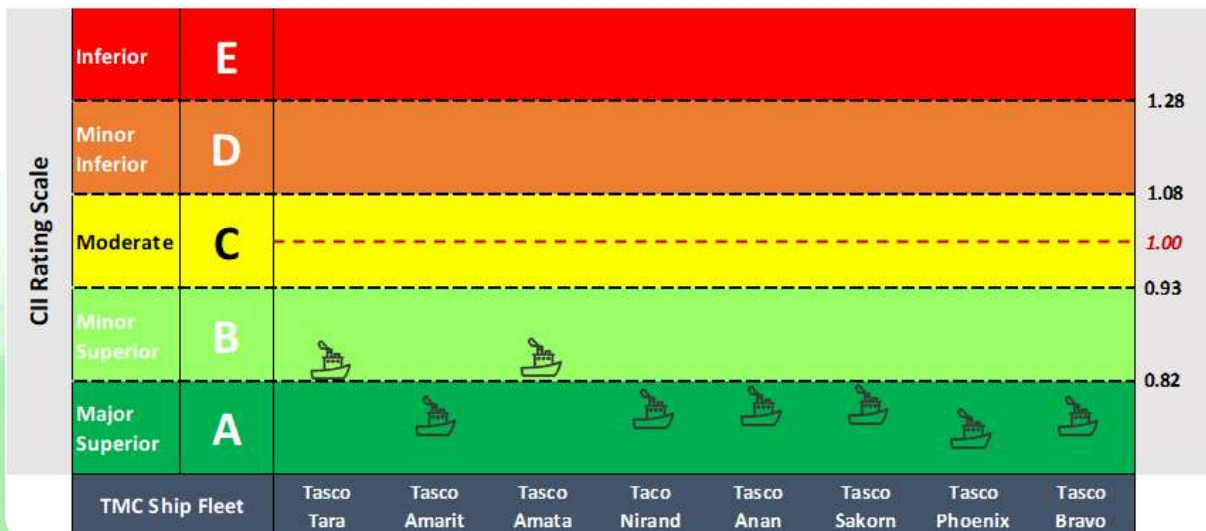
CII: A carbon intensity index calculated from the CO₂ emissions from the vessel in grams when the vessel transports 1 ton of cargo per 1 nautical mile, which will be inspected annually. It is part of IMO's short-term measures to reduce greenhouse gas emissions and applies to vessels of 5,000 GRT and



above operating internationally. The efficiency rating criteria are 'A' (excellent-high), 'B' (excellent), 'C' (moderate), 'D' (poor), or 'E' (poor-low). Vessels receiving a 'D' rating for 3 consecutive years or an 'E' rating for 1 year must take corrective action.

The Group has been continuously developing both vessel management and technical management, such as using S-Insight software by StormGeo. This is one of the systems used for managing, planning, and improving vessel routes to ensure safety while maximizing fuel efficiency to manage and reduce CO₂ emissions successfully according to the plan. The Group has applied CII calculations to all vessels, even though some of the Group's vessels are below the size threshold requiring CII calculation, to set a standard for performance assessment and strive to be a true leader in the environmentally friendly transportation industry. The CII calculation and rating of our fleet in 2023 are in the 'A' (excellent-high) and 'B' (excellent) ranges, as shown in the image:

CII RATING 2023 - TMC SHIP FLEET



Low Emission Support Scheme (LESS) Projects

Tipco Asphalt Group focuses on encouraging all five asphalt production plants in Thailand to participate in the Low Emission Support Scheme (LESS) and request certification for the assessment results of greenhouse gas reduction from the Thailand Greenhouse Gas Management Organization (Public Organization) for a total of 13 activities. The Thailand Greenhouse Gas Management Organization (Public Organization) certified that such Low Emission Support Scheme projects can reduce and store greenhouse gases by 437 and 871 tons of carbon dioxide equivalent, respectively.



Low Emission Support Scheme (LESS) projects that have been certified for the assessment results of greenhouse gas reduction:

Activity/Project	Greenhouse Gas Reduction (tons of carbon dioxide equivalent)	Greenhouse Gas Storage (tons of carbon dioxide equivalent)
1. Change Hot oil fuel from diesel B7 to B10	196	-
2. Improve the pipe and valve system to enable the use of a Heat Exchanger in the production process	142	-
3. Reduce fossil fuel use by switching to biodiesel (B10) for central vehicles and forklifts	40	-
4. Waste sorting for recycling (Raycol 3 Rs for Kids project)	24	-
5. Install Solar Cell for illumination around the parking lot	9	-
6. Waste sorting for recycle	8	-
7. Waste sorting for recycling (Waste Bank project)	7	-
8. Install Solar Lighting for illumination around the warehouse and PMA production building	6	-
9. Waste for Merit project	3	-
10. Install high-efficiency air conditioners to replace old air conditioners	1	-
11. Our Forest of Biodiversity project (Bang Krasop Forest)	-	643
12. Our Forest of Biodiversity project (Bang Krasop Forest)	-	126
13. Survey and measure carbon storage in trees around the factory	-	102
A total of 13 projects	437	871

Project Improvement on Thermal Insulation of Heat Exchange Piping System and Storage Tanks to Reduce Thermal Energy Loss from Products to Atmosphere

Tipco Asphalt Group is committed to continuously optimizing environmental performance and energy efficiency alongside improving work processes through ongoing focused improvement initiatives to reduce or eliminate energy losses in all operational processes of the organization.

In 2023, the asphalt production and distribution in Thailand allocated an investment budget of Baht 15.69 million for upgrading the insulation of product storage tanks with the aim to improve the insulation of heat exchange pipe systems and product storage tanks in two factory operating areas: Upgrading the insulation of the Hot Oil Boiler pipe system at the

Nakhon Ratchasima plant. The Hot Oil Boiler is a crucial machine for heat exchange in the production and product delivery processes. The other is to upgrade the insulation of product storage tanks at the Phra Pradaeng plant, which is the largest asphalt product storage facility. The project commenced in September 2023 and is scheduled for completion in March 2024. In 2023, approximately 70% of the project work was completed.

As a result of this project, the greenhouse gas emissions of asphalt production in Thailand decreased by 533 tons of carbon dioxide equivalent, representing a 9% reduction compared to 2022.



Transition to Energy-Saving for Hot Mix Production in the Construction Business

In 2023, the Construction Business has stepped into a new era of sustainability by integrating innovation in the Hot Mix production process. The Group initiated a project to transform the Hot Mix production system for road paving into a more environmentally friendly approach.

In the past, the production of Hot Mix required the use of a Hot Oil Boiler that operated with a fossil fuel combustion system, resulting in the emission of greenhouse gases and pollutants into the atmosphere. However, with the commitment to reducing environmental impact, the Construction Business decided to transition to a new production system that utilizes electricity instead of burning fossil fuels. This first start occurred in 2022 when the first electric Hot Oil Boiler was installed at the Suvarnabhumi Airport Runway Repair and Construction Project site. In 2023, a second unit was installed at the Suvarnabhumi Airport's Third Runway Construction Project, making a total of two completed installations.

The results achieved from this transition are commendable. It has successfully reduced air pollution caused by fossil fuel combustion and decreased greenhouse gas emissions by up to 78.15 tons of carbon dioxide equivalent. Furthermore, it has saved fuel costs by as much as 299,200 baht per year, demonstrating the efficiency of energy use in a cost-effective and environmentally friendly manner.

This initiative is a crucial step in promoting sustainable development in the construction industry

and serves as an inspiration for other businesses to place greater emphasis on reducing greenhouse gas emissions and utilizing energy efficiently. Green technologies like this will be a key factor in creating a sustainable future for the construction industry and our world.





ENERGY MANAGEMENT



Key material Topic Energy Management

Short-Term Goals in 2023

- Reduce energy consumption (Energy intensity) of fuel and electricity (Gigajoule) by at least 4% compared to the total production volume (tons), using 2020 as the base year.

Long-term Goals in 2025

- Reduce the energy consumption (Energy intensity) by at least 6% compared to the total production, using 2020 as the base year.

Management Approach

Tipco Asphalt Group is committed to conducting business alongside managing environmental impacts throughout the value chain by promoting awareness of protecting and conserving natural resources and the environment among employees, business partners, and allies. This is to ensure that the current natural resources are maintained and benefit future generations. The focus is on business operations in accordance with the environmental management system under the ISO14001 standard, the Environmental and Climate Policy, and the Sustainability Development Policy.

The Group aims to manage energy, support the use of alternative and renewable energy to reduce greenhouse gas emissions from business operations, and support projects to increase energy efficiency, energy conservation, and projects that help mitigate the severity of climate change impacts on the environment, society, governance, economy, and human rights. The emphasis is on reducing energy losses in processes, improving the efficiency of machinery, and initiating the use of clean energy, such as installing LED Solar Lighting to illuminate roads and around office buildings, improving the insulation of product storage tanks to reduce the rate of heat energy loss from products to the atmosphere, and expanding the use of high-efficiency technology in the production of Hot Mix for paving roads. This also includes managing the just-in-time receipt and delivery of goods and production processes.

In 2023, Tipco Asphalt Group disclosed energy data for both the asphalt production and distribution business and the construction business. The data that has been verified and certified by an external agency (Management System Certification Institute: MASCI) covers the period from January to December 2023, only for the domestic asphalt production business and the head office.



Scan the QR Code to Access the Environmental Policy.



Scan the QR Code to Access the Energy Preservation Policy.

Key Results

- Reduced the rate of fuel and electricity consumption (gigajoules) per ton of production by 32.70% compared to the base year 2020.
- Energy consumption of the head office and all 5 asphalt production plants in Thailand was 147,694 Gigajoules.



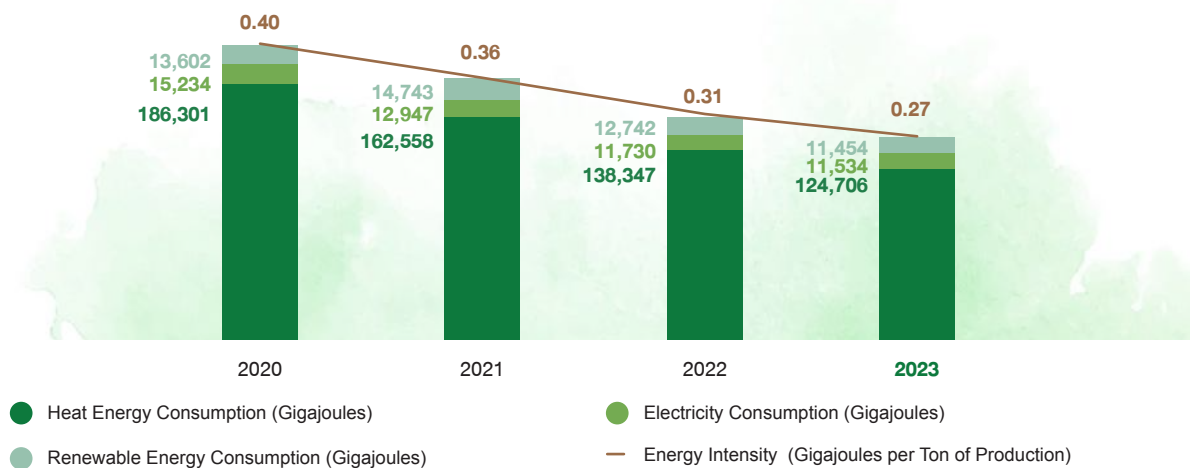
Total Energy Consumption (Gigajoules) by Groups

Tipco Asphalt Group recognizes that energy is a crucial resource for human beings and is essential for business operations in both production and service processes. The main sources of energy consumption within the organization are heat energy and electricity. Therefore, the Group places importance on continuously improving production and service processes through focused improvement to reduce or eliminate energy losses in all operational processes of

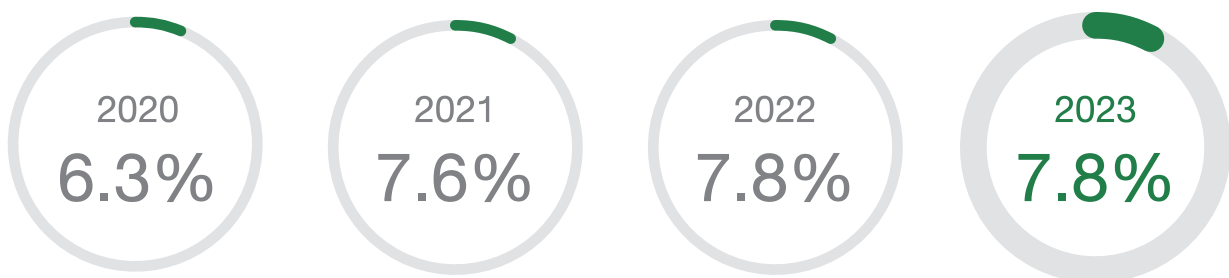
the organization. To this end, the Group initiates the use of clean energy in supporting activities, such as installing LED Solar Lighting to illuminate roads and around office buildings. As a result, the intensity of fuel and electricity consumption (gigajoules) per ton of production has decreased by 32.7% compared to the base year 2020, achieving both short-term and long-term goals as follows:

Domestic Asphalt Production Business and Head Office

The total energy consumption target of the domestic asphalt production business group and head office in 2023 must not exceed 153,826 gigajoules or 42,729 megawatt-hours.



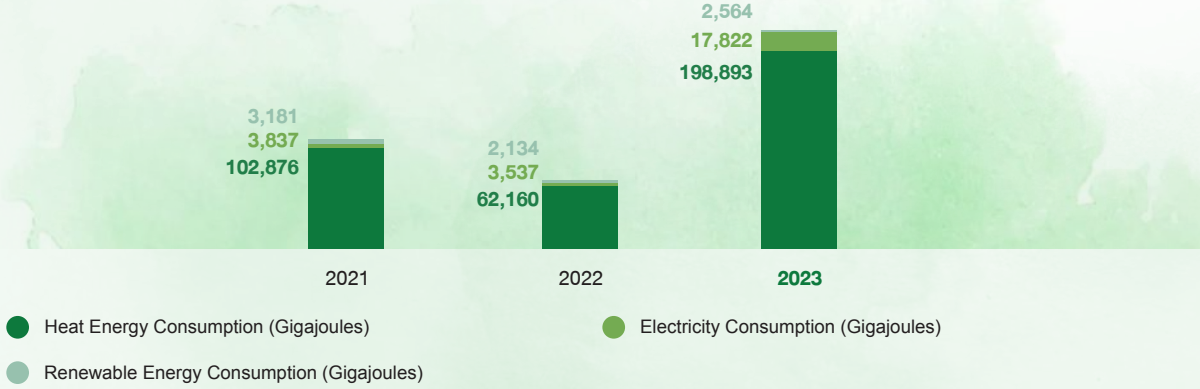
Percentage of Renewable Energy Use



Note: Additional information reported in 2023 is as follows:

1. The energy consumption data of the domestic asphalt production business and head office disclosed in the report has been verified for its source, recording method, and calculation by the Management System Certification Institute (MASCI), a network institute of the Ministry of Industry.
2. The energy consumption data of Construction Business disclosed in the report covers fuel or energy consumption in the production areas of Bang Pakong plant, Wang Noi plant, the Suvarnabhumi Airport Runway Maintenance and Construction Project and the Suvarnabhumi Airport 3rd Runway Construction Project, which have not been verified and certified by an external agency.
3. The energy consumption data is calculated using the net calorific value according to the annual energy report of Thailand, Department of Alternative Energy Development and Efficiency. The Group has performed the calculation using the net calorific value according to the annual energy report of Thailand, Department of Alternative Energy Development and Efficiency, from the base year data to the current year (2020-2023) for ease of data analysis and comparison.

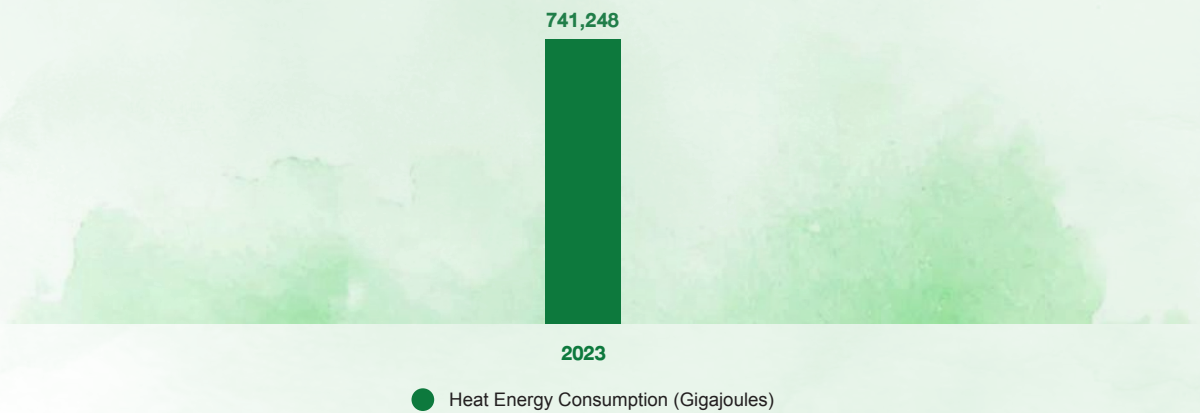
Construction Business



Percentage of Renewable Energy and Alternative Fuel Use



Marine Business



Note: The Marine Business started reporting data in 2023 for the first time, and the data has not been verified and certified by an external agency.

Solar Lighting Project

In 2023, Tipco Asphalt Group focused on and supported the use of renewable energy in the asphalt production business in Thailand. The Group initiated a project to install solar lighting in the operational areas of three main plants: Phra Pradaeng plant, Nakhon Ratchasima plant, and Surat Thani plant, with a total of 34 solar lights.

This project not only helps reduce greenhouse gas emissions by 13.32 tons of carbon dioxide equivalent but also generates electricity from renewable energy

up to 95.90 gigajoules. This is crucial for reducing environmental impact and promoting the use of clean energy in the production process.

The initiation of this project reflects the Group's commitment to driving business alongside environmental conservation and sustainable resource utilization. This will strengthen the organization and build trust among customers, communities, and all stakeholders.





EFFLUENT AND WASTE MANAGEMENT/SPILLAGE & LEAKAGE



Material Topics: Effluent and Waste Management/Spillage & Leakage

Short-Term Goals in 2023

- Zero hazardous and non-hazardous industrial waste sent to landfill.
- The ratio of hazardous and non-hazardous industrial waste intensity (per ton of production) decreased by at least 15% from those in 2022
- The ratio of reused waste or unused materials (Mitigation Hierarchy) should represent 85% of the total waste
- Zero significant product spillage during the transportation process

Long-term Goals for 2025

- Zero hazardous and non-hazardous industrial waste sent to landfill
- The ratio of hazardous and non-hazardous industrial waste (per ton of production) decrease by at least 25% from those in 2022
- The ratio of reused waste or unused materials (Mitigation Hierarchy) represents 90% of the total waste
- Zero significant product spillage



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Environmental Policy.

Management Approach

Tipco Asphalt Group is committed to sustainable business operations by managing environmental and climate impacts across the value chain. The Group recognizes the importance of minimizing the impact of its operations, products, and services to conserve natural resources for future use.

The Group has established policies and complies with environmental law and regulations and international standards, while also supporting research and the development of eco-friendly innovations. The focus is on reducing the amount of both hazardous and non-hazardous waste and implementing zero-landfill approach. In addition, the Group promotes the use of a circular economy to maximize the benefits of natural resources.

The Group applies the Mitigation Hierarchy principle in waste management by avoiding, minimizing, reusing, and recycling to reduce waste generated from various processes, including production, transportation, maintenance, and office administration, using TPM and ISO 14001 systems to ensure efficient management.

However, the Group is committed to conducting business with a focus on continuous improvement of production processes and environmental management to ensure environmentally friendly business operations, while adhering to social responsibility both within and outside the organization throughout the supply chain for sustainable development. This commitment is evident to the public, both internally and externally, through the receipt of the Green Industry Awards from the Department of Industrial Works. The asphalt production business in Thailand, including Phitsanulok, Phra Pradaeng, and Rayong plants, received the Green Industry Level 5 Award (Green Network), while Nakhon Ratchasima and Surat Thani plants received the Green Industry Level 4 Award (Green Culture). Additionally, Construction Business, Bang Pakong plant, received the Green Industry Level 2 Award (Green Activity).

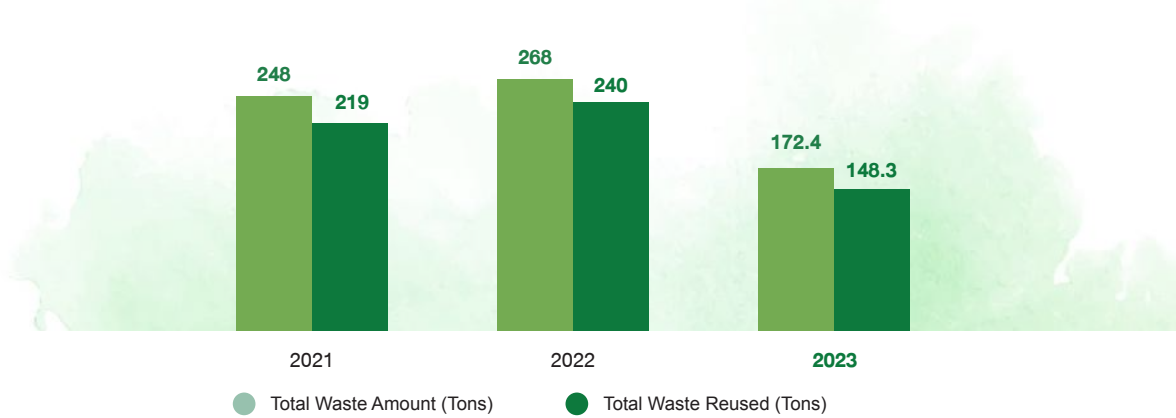
In 2023, the Group transparently disclosed waste management data, which was verified and certified by an external agency (Management System Certification Institute: MASCI), covering data from January to December 2023 for the asphalt production business in Thailand.

Key Results

- Zero hazardous and non-hazardous waste to landfill, achieving the set target.
- The hazardous and non-hazardous waste intensity (per ton of production decreased by 31.95% from those in 2022, achieving the set target of 15%
- The reuse of waste or unused materials under Mitigation Hierarchy guideline accounted for 86.17% of the total waste, achieving the set target.
- Zero spillage of raw materials, chemicals, or products that impact the environment or local communities, achieving the set target.

Achievement in Reducing Hazardous and Non-Hazardous Waste in Tipco Asphalt Group

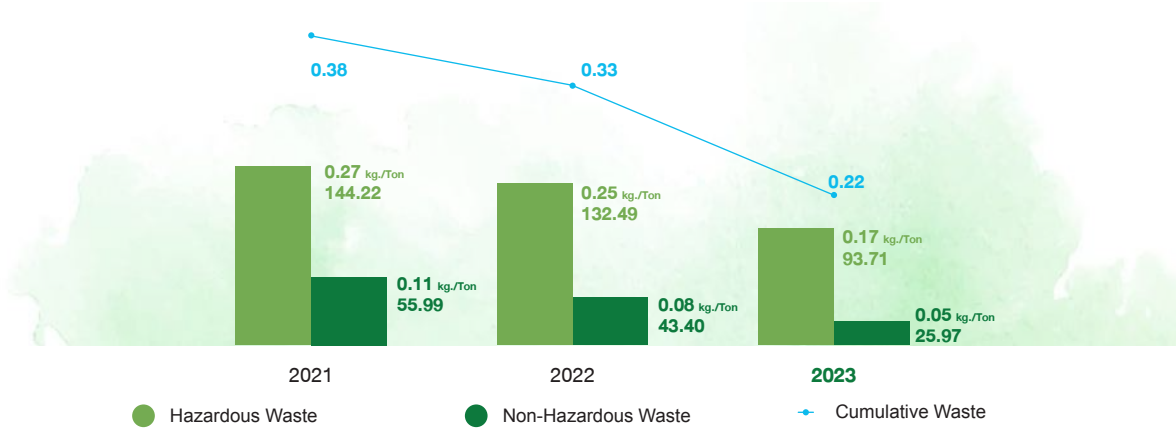
Amount of Waste or Unused Materials Reused in the Asphalt Business



Tipco Asphalt Group is committed to waste management under the Mitigation Hierarchy principles: Avoid, Minimize, Reuse, and Recycling, to

reduce waste at the source. In 2023, the Group was able to reuse waste or unused materials, accounting for 86.17% of the total waste.

Waste intensity (per ton of production) in the Asphalt Business



The asphalt business in Thailand, can reduce hazardous waste by 38.77 tons (29%) and non-hazardous waste by 17.42 tons (40%) compared to

2022. This reduction enabled the organization to reduce expenses from industrial waste disposal by over 168,000 baht.

Business Operations and Waste Management across the Value Chain

Tipco Asphalt Group is confident in managing its waste materials, both hazardous and non-hazardous, in accordance with the guidelines for continuous improvement and development. The Group places importance on analyzing waste data that covers the supply chain, and all employees are aware of the

goals and participate in finding ways to reduce the amount of waste generated in each activity. The amount of waste generated in the value chain and the methods for managing the waste are shown in the table below.

	Sorting for Resale	Recycle	Reuse	Landfill	Incineration
Marine Transportation of Raw Materials 	0 ton	1.34 tons	0 ton	38.69 tons	0 ton
Refining 	Data disclosure started in 2024	Data disclosure started in 2024	Data disclosure started in 2024	Data disclosure started in 2024	Data disclosure started in 2024
Production 	31.37 tons	90.65 tons	2.77 tons	0 ton	0 ton
Production Support Activities 	1.99 tons	0 ton	0 ton	24.11 tons (waste from consumption)	0 ton
Transportation 	0 ton	21.49 tons	0 ton	0 ton	0 ton
Technical Services 	0 ton	2.00 tons	0 ton	0 ton	0 ton
Road Construction 	Data disclosure started in 2024	Data disclosure started in 2024	Data disclosure started in 2024	Data disclosure started in 2024	Data disclosure started in 2024

The “3Rs Waste Management” Project

The increasingly severe and continuous environmental problems, combined with limited resources and improperly managed waste, lead to a climate crisis as well as pollution impacts on land, water, and air. These problems arise from our activities, lifestyles, and daily habits. Many countries are paying attention and collaborating to find solutions, including setting policies for natural resource management and recycling campaigns to collectively eliminate or reduction in waste and turn to environmentally friendly materials according to the circular economy principles.

Tipco Asphalt Group is therefore committed to using available resources worthily to reduce the amount of waste generated. This starts with reducing the use of materials and products that generate waste (Reduce), reusing materials and products that are still functional (Reuse), and recycling materials and products that are no longer in use to repurpose them for new benefits (Recycle).

In addition, we are committed to involving in the community and stakeholders in waste management according to the 3Rs principles by providing knowledge, sharing experiences in waste separation, as well as organizing various projects with communities, such as:

- Tha Thong Canal Conservation Project
- Waste Sharing Happiness Project
- 3Rs Waste Separation Promotion Project for Communities
- Waste Bank Project



Waste in the project that was recycled



Prevention of Product and Chemicals Spillage

Tipco Asphalt Group places great importance on continuously developing safety and environmental protection measures covering all activities and areas of production plants, including asphalt storage facilities, to prevent any impact on the community. This starts from the process of receiving asphalt products via marine tankers to storage tanks in the production process, delivery, and transportation to the production plants and customers' construction sites. The Group is also committed to identifying risks and reviewing measures and manuals to prevent

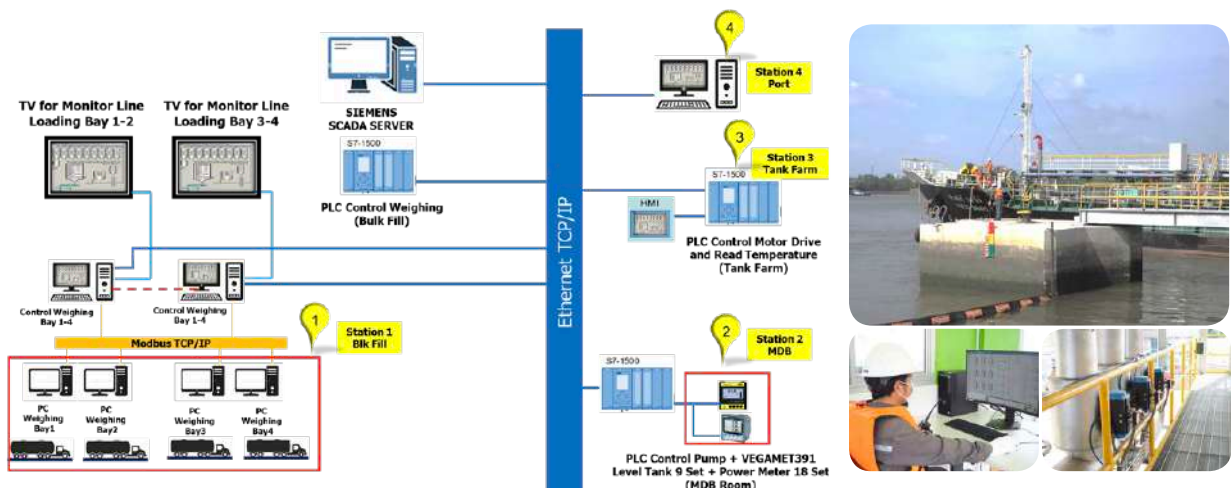
undesirable incidents. Therefore, it emphasizes enhancing the capabilities of incident response and recovery with standard and adequate tools and equipment, as well as improving the efficiency of the emergency response teams through systematic training and drills for spill response involving products and chemicals at least once a year. These efforts aim to reduce both safety and environmental impacts and improve the effectiveness of incident management and recovery times.

Project to Control Asphalt Discharge and Delivery Process with Automated System

Tipco Asphalt Group has identified risks across all processes, including emergency cases of raw material and product spillage, which pose a risk and may impact the environment through contamination, especially during the discharge and delivery process, which is a main work process prone to errors and risks due to the manual control and reliance on the experience of the operators for inspection or process control.

Since 2022, the Group has allocated a budget for improving work processes to reduce the chance of errors and risks in the asphalt discharge and

delivery process. An initiative to control these processes with an Automatic AC Loading System has been implemented at Phra Pradaeng plant with a total investment budget of 10.7 million baht. This is to have an automatic machine control system to reduce operator errors, improve and develop an efficient product delivery control, and prevent accidents from product spillage caused by excessive pressure in the pipeline system or asphalt levels exceeding limits, as well as to reduce the severity of spillage.



Project Enhancement Incident Response and Recovery Capabilities in Case of Spillage during Transportation

Currently, the Asphalt Business in Thailand has established a Centralized Logistics unit responsible for overseeing and managing the transportation of the Company’s products, including both the Company’s transport trucks and outsourced transport trucks. This covers transportation routes across all regions of Thailand.

Therefore, to ensure rapid and effective response to emergency situations during transportation and, to enhance the capabilities in emergency response and recovery in case of raw material and product spillage an integrated emergency drill was conducted in 2023. This drill involved various relevant internal departments, including the Centralized Logistics Department and production plants in Thailand, as well as external stakeholders such as outsourced transport contractors, emergency medical units, police, and communities along the transportation routes.

To maximize the effectiveness of the drill, standard tools and equipment were used, along with the transportation management technology, to ensure that all involved parties understand and are proficient in the emergency and crisis management procedures. This gives us confidence that we are always prepared and capable of responding to emergency situations, covering all areas within raw material and product delivery within the Group.

	2021	2022	2023
Major Spillage Volume more than 20,000 kg/incident	0	0	0
Moderate Spillage Volume between 200-20,000 kg/incident	4	3	8
Minor Spillage Volume less than 200 kg/incident	12	8	6



Tipco Asphalt Group has been collecting data on the number of incidents involving product and chemical spillage, which are classified into three levels: minor, moderate, and major. This statistical data is used to determine and develop effective control, prevention, and management plans.



SAFETY AWARENESS

KEY STAKEHOLDERS



“Better Safe
Than Sorry”

Critical Value Chain



Key Risks and Chances:

- Risk from working at heights
- Risk from inhalation of vapors and chemicals
- Risk from poor posture at work
- Risk from heat exposure
- Risk from working with machinery
- Risk from working with electricity
- Risk from severe infectious diseases in high-risk areas



EMPLOYEE HEALTH AND SAFETY



Key Material Topic Employee Health and Safety

Short-Term Goals in 2023

- Zero fatalities from operations and distribution by employees and transport contractors
- Zero Lost Time Injury Frequency Rate (LTIFR) from operation and distribution
- Zero work-related illnesses
- Zero complaints from customers and stakeholders related to road safety on our delivery trucks
- Zero product spillage during transportation

Long-term Goals for 2025

- Zero fatalities from operation and distribution by employees and transport contractors
- Zero Lost Time Injury Frequency Rate (LTIFR) from operation and distribution
- Zero work-related illness
- Zero complaints from customers and stakeholders related to road safety on our delivery trucks
- Zero product spillage during transportation



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Management Policy

Management Approach

Tipco Asphalt Group conducts its business within the framework of the law and promotes safety awareness among employees and stakeholders in accordance with international management standards, such as ISO 45001 for Occupational Health and Safety Management Systems and ISO 39001 for safe product transportation management.

The Group has a clear occupational health and safety policy that sets objectives and targets to reduce work-related accidents or illnesses to zero and to create a suitable and safe working environment for the well-being of employees, suppliers, contractors, and other relevant stakeholders.

The Group instills in its employees the use of risk assessment methods at every stage of work activities to ensure that risks that may have significant impacts can be reduced and controlled. This includes promoting safety management in freight transportation by utilizing innovations in applications and various online systems to enhance safety standards in transportation, ensuring that goods can be delivered safely, on time, and in full, meeting customer expectations without affecting road users. Furthermore, the procurement process incorporates criteria for labor standards, safety, and environmental quality, alongside price, quality, and delivery of products, and services, to ensure that procurement benefits society and the economy while reducing environmental impacts.

The Group places continuous importance on the healthcare of employees and stakeholders, both in terms of health promotion and prevention and control of epidemics, medical treatment, and physical rehabilitation. This is to ensure that employees are healthy and have physical fitness, free from work-related illnesses, accidents, and hazards from chemicals and various environmental pollutants. Proactive measures are taken, such as pre-employment health checks for new employees

or when there is a job rotation, and annual health checkups for employees based on risk factors by occupational medicine physicians to ensure that the job description and working conditions are not risk factors that threaten the health of employees and those involved.

Significant changes in 2023: Tipco Asphalt Group has reviewed its target for the Lost Time Injury

Frequency Rate (LTIFR) from work-related accidents and deliveries to zero per million hours worked. The Group has also disclosed Occupational Health and Safety data, which has been verified and certified by an external agency (Management System Certification Institute: MASCI), covering data from January to December 2023 for the domestic asphalt plants and the head office.

Key Results

- 1 case of fatality Construction Business
- Zero fatality from product distribution by employees and transport contractors
- Lost time injury frequency rate from work-related accidents and deliveries of 1.14 per million hours worked
- No employees suffered from occupational illness
- No complaints regarding safety from road users towards freight trucks
- No product spillage during transportation
- Encouraged employees to participate in identifying risks through Unsafe Acts (UA), Unsafe Condition (UC), and near-miss incidents to reduce the chances of accidents



Employee Health and Safety

Occupational Health and Safety Risk Management for Employees

The Group has a risk management process to address potential serious accidents and occupational illness. The process involves identifying hazards and the severity of potential incidents in all work activities. Every employee participates in the risk assessment process according to the operating manuals. Contractors and stakeholders, are involved in the assessment through safety meetings between supervisors and contractors, which continue until the work or project is completed.

Hazard identification is carried out in detail, covering the resources used, job characteristics, design, work

methods, work locations, past incidents, and changes in work processes. This allows for appropriate prediction of potential hazards, leading to the development of effective risk control measures. The Group requires the use of Hierarchy Controls, such as process modification, machinery improvement, sourcing alternative raw materials, establishing safety regulations, and ensuring a safe working environment.

Furthermore, the Group reviews risk assessments regularly, at least once a year, to ensure that risk management is appropriate and keeps up with changes.

Examples of key risks and risk control measures related to employee Occupational Health and Safety

Potential Risks	Risk Control Measures
Fire in the oil storage tank area	<ul style="list-style-type: none"> • Issuing work permits for hazardous areas • Installing automatic fire extinguishing system and sprinkler heads
Trailer may detach from the tractor while moving	<ul style="list-style-type: none"> • Installing of trailer detachment prevention equipment
Accidents from truck moving at low speeds, such as turning in narrow spaces and reversing in the factory	<ul style="list-style-type: none"> • Setting clear traffic lines installing reflective signs • Increasing rear-view assistance while reversing in the factory
Product spillage from overfilling due to pumping materials in excess of the tank's capacity	<ul style="list-style-type: none"> • Installing automatic pump cut-off system
Accidents from working with rotating machinery (pumps), rotating points, pinch points	<ul style="list-style-type: none"> • Installing shield at of machine rotating area • Installing safety interlock switch
Hazardous chemicals disperse during pumping	<ul style="list-style-type: none"> • Installing a wet air pollution control system or Wet Scrubber System
Accidents from broken pumping and transferring hoses	<ul style="list-style-type: none"> • Checking and setting maintenance plans • Installing safety release valve system for trucks
Accidents from wet and slippery floor conditions	<ul style="list-style-type: none"> • Installing of anti-slip rubber mats and increasing in the length of canopies in roof areas

Participation in Occupational Health and Safety, Environment, and Consultation

The Group encourages employees and stakeholders to participate in safety by motivating everyone to see the value in helping to create safety. There is an Occupational Safety and Health Committee (OSH Committee) consisting of representatives from the management and employees, working together to raise the organization's safety standards.

The OSH Committee is responsible for considering

safety policies and plans, and suggesting measures or guidelines for improvement to prevent and reduce accidents, injuries, and work-related illnesses by working with the participation of all relevant parties.

Through participation and committee-based work, the Group aims to ensure that everyone in the organization is aware and jointly responsible for creating a safe working environment.

Promoting a Safety Mindset and Cultivating a Safety Culture

The Group is committed to fostering a safety culture within the organization, focusing on comprehensive safety care for both employees and contractors. Cultivating a safety culture has positive impacts on employee behaviors, increasing work accuracy and strict adherence to regulations.

The Group provides training and develops knowledge, skills, awareness, and positive attitudes towards safety in operations through various channels such as online training, video clips, meetings to analyze accidents or near-miss.

The Group also creates awareness and positive attitudes towards safety through joint safety conversations, organizing outstanding employee contests to commend employees who are good

examples of safety, and holding safety week activities for employees to present innovations and creative ideas in preventing and reducing accidents.

Prevention, control, and surveillance are always adapted to suit current situations, such as safety rules and regulations, reviewing activities with dangerous risks, analyzing risk points, and making improvements to reduce the risk of accidents. Employee health promotion activities, such as the "Good Health Workforce Project", are organized to prevent work-related illness and injuries.

With a commitment to developing a proactive safety culture, the Group aims to build a strong and sustainable organization in terms of safety for all involved parties.



Promoting Safety, Building Confidence, and Strengthening Culture

Through the commitment of all parties working together to create a safety culture within the organization, in 2023, the Group has maintained its safety performance standards exceptionally well. The Group has received awards related to safety management from government agencies, as follows:

National Outstanding Award for Safety from the Department of Labour Protection and Welfare, Ministry of Labour. All five plants in Thailand received the awards. Specifically, Rayong plant received the prestigious Platinum Level Award for 17 consecutive years of such award.

Zero Accident Campaign Award from the Thailand Institute of Occupational Safety and Health (Public Organization) for all five plants in Thailand.

Zero Accident Campaign Award for High-Risk Work in Transportation from Thailand Institute Of Occupational Safety And Health (Public Organization) for the Phitsanulok, Nakhon Ratchasima, and Rayong plants.

These awards reflect the Group's commitment to promoting safety for the quality of life of employees and stakeholders, creating a better atmosphere and environment that leads to efficiency and happiness at work. This builds confidence and reputation for the organization and creates pride among the Company's employees.

Construction Business, Thanomwongse Service Co., Ltd., has been a pioneer in introducing new asphalt paving technology to Thailand for over 40 years. It is committed to preventing serious

accidents, especially those occurring on the roads. The Company has organized training courses on Defensive Driving to develop driving skills and proper vehicle maintenance. In addition, there is education on traffic regulations and promote the use of seat belts at all times to ensure maximum safety for the drivers themselves, other road users, and other parties.

For the Construction Business and TN joint venture, with over 1,000 personnel working within the Suvarnabhumi Airport's Third Runway construction project, employees and contractors on-site have been working with dedication and adherence to safety principles. This has resulted in a cumulative working time of over 8 million man-hours without a lost-time injury. The focus is on systematic work planning to comply with international safety standards and promote activities that raise safety awareness among employees and contractors, such as: Tool Box Talks activities with employees at all levels; jointly analyzing risks and hazards before starting work; Safety Patrol activities to identify risks or unsafe conditions within the work site and make improvements to prevent those risks from becoming the cause of accidents; communicating and collaborating on safety issues, creating safety knowledge posters, and SSHE News; providing both training and practical exercises to ensure that employees and contractors have the knowledge and skills to work safely every day.



Data of Domestic Asphalt Business Group Head Office

Work-Related Injuries and Illnesses	Unit	2020	2021	2022	2023
Number of fatalities of domestic employees	Person	0	0	0	0
Number of fatalities of domestic employees (product distribution)	Person	0	0	0	0
Number of fatalities of contractors (product distribution)	Person	0	1	0	0
Number of lost-time injuries of domestic employees	Person	0	0	0	1
Number of lost-time injuries of contractors	Person	0	1	1	0
Lost-time injury frequency rate (LTIFR) of domestic employees	Person/million hours worked	0	0	0	0.77
Lost-time injury frequency rate (LTIFR) of contractors	Person/million hours worked	0	3.35	3.7	0
Total number of injury incidents with full records (beyond first aid)	Person	0	0	0	1
Number of lost-time occupational illnesses of domestic employees	Person	0	0	0	0
Lost-time occupational illness frequency rate (OIFR) of domestic employees	Person/million hours worked	0	0	0	0
Number of complaints related to health and safety	Case	0	0	0	0

Data of the Construction Business

Work-Related Injuries and Illnesses	Unit	2020	2021	2022	2023
Number of fatalities of domestic employees	Person	NA	0	0	1
Number of lost-time injuries of domestic employees	Person	NA	0	2	3
Lost-time injury frequency rate (LTIFR) of domestic employees	Person/million hours worked	NA	0.00	1.25	1.89
Number of lost-time injuries of domestic employees	Person	NA	0	2	4
Number of lost-time occupational illnesses of domestic employees	Person	NA	NA	NA	0
Lost-time occupational illness frequency rate (OIFR) of domestic employees	Person/million hours worked	NA	NA	NA	0
Number of complaints related to health and safety	Case	NA	NA	NA	0

Note: N/A (Not Available) means no data was collected.

Data of the Marine Business Group

Work-Related Injuries and Illnesses	Unit	2020	2021	2022	2023
Number of fatalities of domestic employees	Person	NA	0	0	0
Number of lost-time injuries of domestic employees	Person	NA	0	0	0
Lost-time injury frequency rate (LTIFR) of domestic employees	Person/million hours worked	NA	0.00	0.00	0.00
Number of lost-time injuries of domestic employees	Person	NA	0	0	0
Number of lost-time occupational illnesses of employees in the country	Person	NA	NA	NA	0
Lost-time occupational illness frequency rate (OIFR) of domestic employees	Person/million hours worked	NA	NA	NA	0
Number of complaints related to health and safety	Case	NA	NA	NA	0

Note: N/A (Not Available) means no data was collected.

Data of the Domestic Asphalt Business Group, Construction Business, Marine Business, and Head Office

Work-Related Injuries and Illnesses	Unit	2020	2021	2022	2023
Number of fatalities of domestic employees	Person	0	0	0	1
Number of fatalities of domestic employees (product distribution)	Person	0	0	0	0
Number of fatalities of contractors (product distribution)	Person	0	1	0	0
Number of lost-time injuries of domestic employees	Person	0	0	2	4
Number of lost-time injuries of contractors	Person	0	1	1	0
Lost time injury frequency rate (LTIFR) (domestic employees)	Person/million hours worked	0	0	0.57	1.14
Lost time injury frequency rate (LTIFR) (contractors)	Person/million hours worked	0	3.35	3.70	0
Total number of injury incidents with full records (beyond first aid)	Person	0	0	2	5
Number of lost time occupational illnesses of domestic employees	Person	0	0	0	0
Lost time occupational illness frequency rate (OIFR) of domestic employees	Person/million hours worked	0	0	0	0
Number of complaints related to health and safety	Case	0	0	0	0

Good Health Workforce Project

A healthy workforce benefits not only individuals but also contributes significantly to an organization's success.

The Good Health Workforce Project at the Surat Thani plant aims to provide employees with training and education on modifying their eating habits, rest, and exercise, which can greatly benefit their health and well-being. The project includes the following components:

Training on nutritious food consumption: This training program will include learning about nutritious and appropriate foods for health, analyzing the efficiency of meals, and proper food preparation methods for work and rest.

Encouraging adequate rest: This project can include suggestions and support for employees to have sufficient rest during working hours. This may involve creating an atmosphere that encourages employees to rest, providing comfortable rest areas, or supporting employees in using relaxation techniques such as yoga or meditation.

Supporting exercise programs after work hours: This project will organize after-work exercise activities such as walking for health and social purposes, organizing sports activities for fun and health promotion, or providing guidance on appropriate exercise

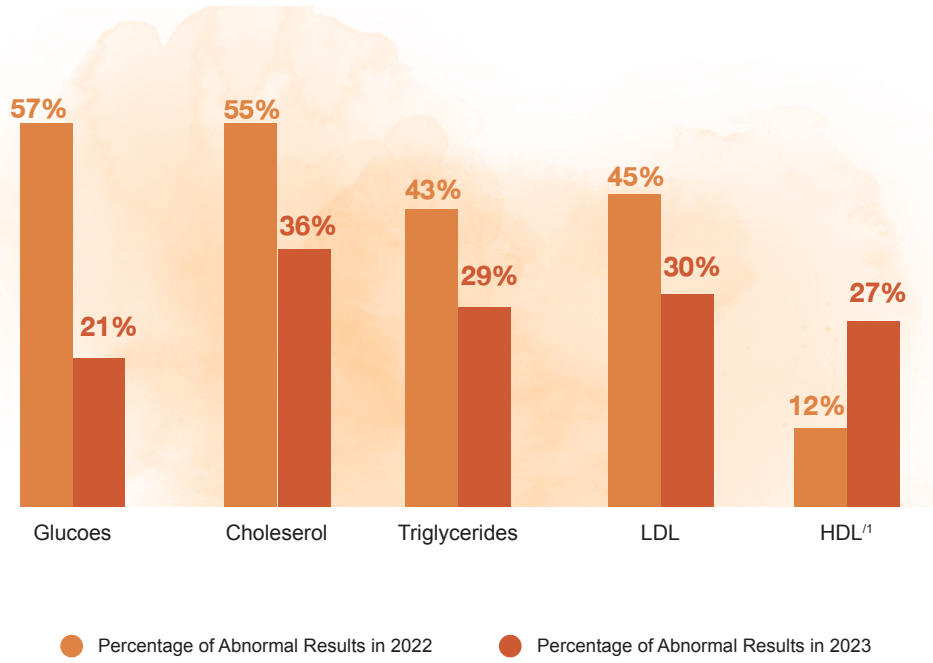
programs for each individual. The project will run for 3 days a week, 30 minutes each session, continuously for 1 fiscal year with a budget of 20,400 Thai Baht. The results will be measured by comparing the Body Mass Index (BMI) before and after the project, and rewards will be given to those who can reduce their BMI to meet the standard criteria. Additionally, the results of the annual health check-up, blood sugar levels, and blood lipids will be compared. The results of the project showed that:

- Employees have a positive attitude towards modifying their behaviors to prevent stroke.
- Abnormal health check results exceeding standard criteria, such as blood sugar levels and blood lipids (LDL), decreased by approximately 15% compared to that in the 2022 health check results.

Promoting health during working age in this manner helps improve employees' health and job satisfaction while reducing stress and fatigue at work. Caring for employees' health is also crucial for enhancing the Group's performance and productivity in the long run by reducing medical expenses and losses from absenteeism due to illnesses or injuries.



Comparison of Annual Health Check Results for 2022 and 2023



¹ HDL Cholesterol



Development of a Trailer Detachment Prevention Device

Encouraging employees to be aware and participate in creating a culture of continuous improvement can enhance competence and creativity, which are essential for improving work safety.

This project was developed by Mr. Phakkaphol Sucharit, a skilled maintenance technician at the Surat Thani plant, to reduce accidents from transportation by trucks to zero (Zero Truck Accident). This benefits the business by delivering goods to customers on time and in full quantity, and it benefits society and the community by reassuring other road users.

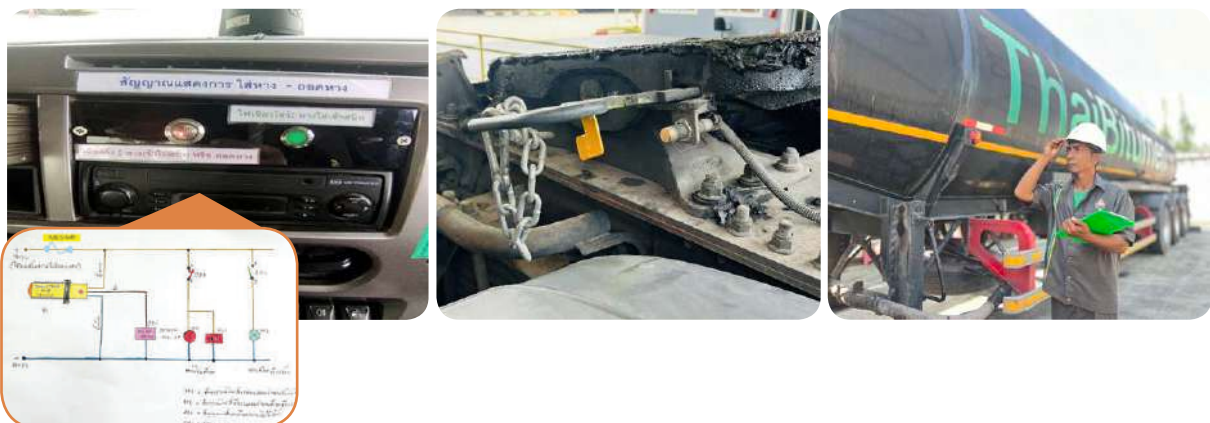
The activity of connecting a trailer to a truck's tractor is a high-risk activity. The trailer may detach from the tractor while moving the truck, which can occur if the locking mechanism between the tractor and the trailer is not fully engaged. In this case, the trailer will not be securely attached to the tractor. When the truck moves, the trailer will fall off the tractor, causing damage to the Group's property and potentially impacting the environment if there is a spillage of goods.

To address this problem, employees used the Kaizen method to find a device that would help check the locking position and notify the truck driver in the cab about the status of the locking mechanism. Employees began by designing a working circuit, and the selected device needed to work with the truck's existing electrical circuit. The

chosen device was a proximity sensor. The working principle is that when the trailer's locking mechanism is correctly engaged with the latch, the distance of the retracted spring rod will be close to the proximity sensor. This device will send a signal to be displayed on the control panel in the cab area. If the latch or the locking mechanism is not in the locked position or a position that the sensor cannot detect, there will be a warning light and sound inside the cab. The truck driver will be aware of the status of the trailer connection and can rectify the issue before moving the truck.

The trailer detachment prevention device project takes approximately 7 days to install one set of equipment, with an investment cost of 2,500 Thai Baht. The results of this Kaizen project have improved the performance of truck drivers as follows:

- Helps prevent accidents during transportation
- Provides confidence to drivers and road users that accidents will not occur on the road
- Eliminates product leakage caused by transportation accidents
- Delivers goods to customers on time and in full quantity





SAFETY DURING TRANSPORTATION AND DELIVERING GOODS



Secondary Topic: Safety during Transportation and Delivering Goods

Short-Term Goals in 2023

- Zero complaints from customers and stakeholders regarding safety from road users towards the delivery
- Zero fatalities from works and distribution pertaining to employees and contractors
- Zero lost time injury frequency rate (Product Distribution) per million hours worked
- Zero product spillage during delivery

Long-term Goals for 2025

- Zero complaints from customers and stakeholders regarding safety from road users towards the delivery
- Zero fatalities from works and distribution pertaining to employees and contractors
- Zero lost time injury frequency rate (Product Distribution) per million hours worked
- Zero product spillage during delivery



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Road Traffic Safety
Management Policy

Management Approach

Transportation safety is crucial as the Group's activities involve a large number of stakeholders, including customers, communities, employees, and other road users. The Group places great importance on safety issues to reduce the chances and prevent risks that may affect stakeholders. Therefore, the Group manages safe transportation according to the internationally recognized standards of the Occupational Health and Safety Management System ISO 45001 and the Road Traffic Safety Management System ISO 39001. This ensures effective safety management through strict safety control and supervision, enabling the delivery of goods safely, on time, and in full, meeting customer expectations.

Another critical factor in driving the efficient management of transportation safety is the Transport Safety Manager (TSM). TSMs are the main force in pushing forward the implementation of safety management related to freight transportation in accordance with the Ministerial Regulation on Transport Safety (No. 2) B.E. 2563. Additionally, the Centralized Logistics Department serves as a center for controlling and monitoring the transportation of goods by the Group and its transport contractors, as well as deliveries, through a 24-hour GPS and CCTV system to ensure that deliveries align with customer requirements.

Key operations in 2023: The Group recognized the importance of transportation safety and had conducted surveys of all transportation routes. It also raised safety awareness among truck drivers by sharing risk points and hazards along transportation routes and making improvements to ensure safety for stakeholders along these routes.

To demonstrate its commitment to systematically managing Occupational Health and Safety, the working environment in accordance with international standards, the Group participated in the Safe Transport Safe Life project for the year 2023. This project, organized by the Labor Safety Division of the Department of Labor Protection and Welfare, focuses on driving safety, occupational health, and work environment in high-risk occupations, such as transportation. The plants that received the outstanding certificate awards were Nakhon

Ratchasima, Phitsanulok, and Rayong.

Significant Changes in 2023: The Group reviewed the target for zero lost time injuries frequency rate of product distribution per million hours worked. The Group also disclosed Occupational Health and Safety data, which had been verified and certified by an external organization (Management System Certification Institute: MASCI). The data covered the period from January to December 2023 for the domestic asphalt production business and the headquarters.

Key Performance Results

- Zero complaints from customers and stakeholders regarding safety from road users towards the delivery
- Zero fatalities from works and distribution pertaining to employees and contractors
- Zero lost time injury frequency rate from delivery per million hours worked
- No spillage of products during delivery



Risk Management on Product Distribution on Road

Production distribution on the road is one of the main activities with a high risk of accidents or damage to life and property without proper management. Recognizing the importance of this issue, the Group has established a comprehensive risk management approach based on international standards such as ISO 45001 and ISO 39001.

The process begins with identifying hazards that may impact road freight transport and stakeholders, both in terms of safety of life and property damage. The Group involves all drivers in identifying hazards in transportation and along transport routes, which is a crucial step in identifying risk areas and various risk factors.

Subsequently, the Group has implemented comprehensive preventive and control measures for freight transport risks. Examples include checking

the readiness of the truck and the driver before each trip, planning trips in accordance with relevant laws, determining safe parking areas, and monitoring and reporting abnormalities in every freight delivery trip.

Furthermore, the Group places importance on continuously enhancing knowledge and safety awareness in delivery for employees and transport contractors. The "Good Driver for All" project has been implemented to share knowledge and best practices in safe freight transport, raise awareness, and cultivate a joint safety culture in transportation. With a comprehensive risk management approach for road freight transport and the participation of all relevant stakeholders, the Group is committed to raising the standard of safety in delivery, reducing the likelihood of accidents and losses, and delivering trust to customers and all stakeholders.

Examples of significant risks and risk control measures in Occupational Health and Safety of product distribution

Risks	Preventive measures or Guidelines:
Truck involved in Collisions	
<ul style="list-style-type: none"> • Due to unfamiliarity with routes 	<ul style="list-style-type: none"> • Providing an official Line account called "Pin Navigator" for drivers of contractors to directly inquire about routes with logistics staff • Providing an application called "ePOD Application" for the Group's drivers to study routes before delivering goods and navigate to customers' plants using truck-specific routes surveyed by the Group
<ul style="list-style-type: none"> • Due to narrow routes 	<ul style="list-style-type: none"> • The "More Sharing, More Gaining" activity allows drivers to share risk areas and hazards with other drivers and stay vigilant at those risk areas • The "Enhance Safety on Transportation Routes" project utilizes the risk areas from the "More Sharing, More Gaining" activity into consideration for improvements to ensure driving safety

“Good Driver for All” Project

The Group recognizes the importance of ensuring the highest level of safety in road transportation. We are committed to conducting transportation activities safely and reducing the risk of accidents or impacts on stakeholders along the product distribution routes. This is achieved through the development of a management system that involves social responsibility participation and certified ISO 39001, which is another source of pride for the company as it contributes to reducing road accidents, aligning with the government's policy of moving towards a decade of road safety. The idea for the "Good Driver for All" project emerged in 2022 and continued into 2023, following the principle of social development in the way of creating business value.

The project implementation in 2023 involved the Group's Transport Safety Manager (TSM) providing knowledge about defensive driving or behind-the-wheel techniques. The project aims to raise awareness about safety in transportation for both the use of the trucks and the routes and respond to the needs and expectations of stakeholders. It also fosters relationships with business partners in delivering sustainability to society, in line with the organization's core values. In 2023, it has been extended to the drivers of Group's construction company drivers. The total budget used for the project amounts to 23,375.60 Thai Baht.



Results of the contractors' drivers:

- 93 drivers from contractors participated in the training, accounting for 84.55% of the total 110 drivers from 6 companies. The average satisfaction level of participating drivers was 90.46%.

Results of the Group's drivers:

- 81 drivers from the Group participated in the training, accounting for 100% of the total.
- 100% of participants passed both the theoretical and practical assessment criteria.

Results of the drivers of Construction Business:

To raise awareness among drivers, the Group organized additional training for the construction business, including both theoretical and practical sessions. A total of 15 drivers participated in the training.

- 12 participants, or 80.00% of the trainees, passed the theoretical assessment criteria.
- 14 participants, or 93.33% of the trainees, passed the practical assessment criteria.

Project to Enhance Safety on Product Distribution Routes

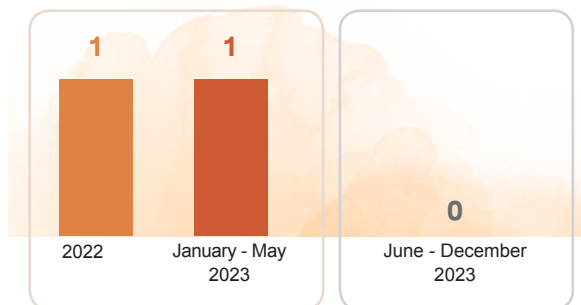
The "More Sharing, More Gaining" project, which was implemented throughout 2022 and continued into 2023, has involved sharing information about risk and hazardous areas along product distribution routes to monitor these high risks. Additionally, route surveys have been conducted to comply with the ISO 45001 and ISO 39001 standards. To reduce and prevent risks that lead to accidents, Phra Pradaeng plant has initiated a project to enhance safety on product distribution routes, with collaboration from customers, the sales department, centralized logistics department, distribution department, security department, Occupational Health and Safety, and Environment department, as well as local government agencies. The project involved installing convex traffic mirrors at Soi Sri Charoen 6, the entrance and exit of Vanitchai Construction (1979) Co., Ltd. in Sothon Subdistrict, Mueang Chachoengsao District, Chachoengsao Province. This initiative helps improve visibility for drivers and warns road users of potential dangers along the route.

The objective of the project to enhance safety on product distribution routes is to prevent and reduce accidents along these routes while also responding to the needs and expectations of stakeholders. The project duration was from May to October 2023, with a total budget of 15,455 Thai Baht. 9 stakeholders participated in this activity.

Project Results:

- Zero incidents on this route
- No complaints were received regarding the route
- 100% customer satisfaction among participants
- 83.71% employee satisfaction among participants

Incidents on the Route



(Before Project Implementation) (After Project Implementation)

Soi Sri Charoen 6, the entrance and exit of Vanitchai Construction (1979) Co., Ltd., Sothon Subdistrict, Mueang Chachoengsao District, Chachoengsao Province.

Risks and Hazardous Areas:

The entrance and exit of Vanitchai Construction (1979) Co., Ltd.



GOOD CORPORATE GOVERNANCE

KEY STAKEHOLDERS



“For Strong Business Foundation”



KEY VALUE CHAIN

Key Risks and Opportunities:

- Risk related to knowledge of Enterprise Risk Management
- Risk from recruiting and developing top executives
- Risk from respect for human rights and community
- Risk from complaint from the community
- Risk from information disclosure
- Risk from anti-corruption
- Risk from fair competition



RISK AND CRISIS MANAGEMENT



Key Material Topic Risk and Crisis Management

Short-Term Goals in 2023

- Review Enterprise risk management policy on annual basis
- Report top corporate risks on a quarterly basis
- Study the use of technology to enhance the efficiency of Enterprise Risk Management operations
- Identify and assess climate risks and integrate them into the Enterprise Risk Management process
- Expand the implementation of Enterprise Risk Management to the construction business and subsidiary in Cambodia
- Provide training on Enterprise Risk Management to the joint venture company, Phoenix Asphalt Philippines, Inc.
- Hold an annual Risk Management Committee meeting and organize a sharing session on climate risk management

Long-term Goals for 2025

- Monitor and review risk management, internal control measures, and the effectiveness of the risk management processes throughout the organization on an ongoing basis
- Apply international standard risk management principles to improve, develop, and monitor operations and support the organization's strategy formulation for long-term sustainability
- Set a goal to undergo the second verification of the international standard ISO 31000:2018 - Risk management guidelines
- Proactively improve business continuity plans by incorporating potential disasters and other unexpected incidents with possible high impact on operations
- Promote the use of technology in business operation and integrate the business continuity management system

Management Approach

The Group places importance on and encourages employees to apply risk management principles into operations with continuous improvement in accordance with the COSO ERM framework and ISO:31000 Risk management standards. This is based on the concept of creating Risk Culture, which is one of the DNA of TIPCO Core Values in the dimension of Prudence. This means considering all aspects, taking into account risks and responsibilities in work, as well as increasing the consideration of sustainability risks (ESG risks) in the risk identification process.

Effective risk management is crucial for the sustainable growth of the Group's business. It enables the management to adjust strategies and operational plans appropriately amidst the volatility of internal and external factors and future changes, in order to achieve goals efficiently and create long-term value for the Group and its stakeholders. The Group, therefore, applies international Enterprise Risk Management principles and emphasizes the integration of risk management as part of its operations and organizational culture at all levels with prudence.

Key Results

Policy

- Reviewed the organization's risk management policy and received approval from the Board of Directors in May 2023

Reporting

- Reported top corporate risks on a quarterly basis to the Risk Management Committee, Executive Committee, and the Board of Directors

Technology

- Conducted a study on the use of technology to enhance the efficiency of the organization's risk management operations, aiming to improve information, communication, and risk data reporting

Enterprise Risk Management

- Held an annual Risk Management Committee meeting and organized a sharing session on climate risk management
- Identified and assessed climate risks and integrated them into the Enterprise Risk Management process
- Expanded the implementation of Enterprise Risk Management to the construction business and subsidiary in Cambodia
- Provided training on Enterprise Risk Management to the joint venture company Phoenix Asphalt Philippines, Inc.



Instill a Risk Culture

The Group adopted the concept of 3-level risk management (3 Lines of Defense) to apply in corporate risk management under governance structure - the Board of Directors is responsible for approving the Risk Management Policy and Risk Appetite. The Risk Management Committee (comprising board members and senior executives) oversees and monitors risk management and internal control at the operational level, and the Internal Audit Department, charged with assessing the effectiveness and adequacy of the risk management process.

The Group actively encourages its employees to comprehend and apply risk management principles in their work processes to proactively identify, prevent, and manage risks while continuously seeking

opportunities to enhance work processes in alignment with the Group's strategic direction and objectives. This is achieved by instilling a strong sense of risk ownership among employees at all levels, emphasizing their roles, responsibilities, and accountability in managing risks associated with their own work and that of relevant stakeholders both within and outside the organization. The Group promotes open-communication and collaborative risk management among employees through various initiatives such as internal training, knowledge sharing via diverse communication channels, risk assessment training, and collective brainstorming sessions aimed at improving and developing operational systems in a cooperative manner.





In 2023, the Risk Management Committee convenes to review the Enterprise Risk Management policy and all risk issues of the organization, including plans and control measures, as well as the top corporate risks.



Effective Risk Management Processes Promotes Long-term Corporate Sustainability Management

The Group perform risk management process by identifying corporate risks , strategic risks, and operational risks, and sustainability risks (ESG risks) according to the value chain in with the business direction and goals of the organization. This process focuses on risk assessment, risk monitoring and

control, reporting and communication, and regularly reviewing the adequacy and effectiveness of risk management by each relevant department. The Risk Management Committee, which is under the supervision of the Executive Committee and the Board of Directors, oversees this process.



Business Continuity Management

Tipco Asphalt Group places great importance on Business Continuity Management to ensure that the business can continue to operate continuously, as well as to ensure the safety and protection of stakeholders' interests and create sustainability for the business. The Business Continuity Plan covers the identification of activities and positions that are critical to business continuity operations and regular rehearsals with relevant departments.

In emergency situations, the Group has processes and protocols in place to closely monitor news and situations in order to continuously assess the situation, the impact on the company, and the safety of employees, customers, and relevant stakeholders. The Group also applies business continuity management guidelines. Furthermore, the Group also reviews and adjusts its operational approach to be flexible and timely, as well as establishing a special task force to coordinate internally and manage emergency situations.

Emergency Drill in 2023 (Times)

Department / Location	Emergency Plan						Terminal Safety Measures (Domestic and International)	Truck Accident	
	Fire	Spilled Chemical	Flood	LPG Leakage	Rescue of Victims from Confined Spaces	IT System Recovery		Road Rescue Plan	Oil- Spill Cleanup
Construction Business Group	3	6			4			1/	6
Refinery in Malaysia	1	2			1	3			
Marine Business						1	2		
Headquarters in Thailand	1					1			
5 Plants in Thailand	6	6	5				9	5	2

1/ Tool Box Talk (TBT) process with employees regarding transportation services and night emergency by SSHE staff every week.



PARTICIPATION IN COMMUNITY AND SOCIAL DEVELOPMENT



Key Material Topic Participation in Community and Social Development

Short-Term Goals in 2023

- Implementing projects to create shared value, especially direct activities that respond to the needs and expectations of communities and align with the organization's ethical principles and sustainability strategies

Long-term Goal for 2025

- Satisfaction with the project is no less than 85%.



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Responsibility Policy

Management Approach

Tipco Asphalt Group recognizes that its operations must consider all stakeholders, including communities, society, and the environment. To this end, the Group has established a social responsibility policy based on the ISO 26000 standard, following the concept of "Sustainable business operations with responsibility to society and communities". This policy emphasizes understanding and addressing community problems, in collaboration with stakeholders to plan solutions for sustainable development in economic, social, and environmental dimensions.

In 2023, the Group placed importance on continuously implementing key projects, such as "patching potholes" on roads for safe travel using Tipco Premix products that can be used easily to repair small potholes.

In addition, the Group has initiated the "Safety Road for Kids" project to raise awareness of road safety among youth and the "3Rs for Kids" project that aims to share knowledge of waste management according to the 3Rs principles to promote a sustainable environment.

For public health, the Group has implemented the "Basic Life Support" project to provide basic life-saving training to communities, aiming to reduce the mortality rate from sudden cardiac arrest. This project has received cooperation from a network of partners, public health agencies, communities, and the private sector in the area.

The Group demonstrates its commitment to conducting business alongside giving back to society by creating sustainable shared value.

Key Results

- Community satisfaction with various projects was at a high level of 94.09%.
- The employee participation rate in volunteering activities was at a high level of 83.4%, demonstrating the strong creation of an organizational culture focused on social engagement.
- The number of volunteer hours employees worked for society reached an impressive 14,329 hours, reflecting their dedication to creating value for society.
- A total of 7,973 stakeholders participated in the projects.
- The Tipco Open House project, which aimed to educate students, the general public, and regulatory government agencies about the asphalt industry, was held 3 times with a total of 118 participants.
- The "Knowledge Sharing" project provided training and demonstrations on the use of Tipco Premix (ready-mixed asphalt) to students, government agencies, and community members, with 537 participants.
- The Road maintenance project for safe travel added 3 new routes, totaling 7.07 kilometers, in communities where its plants are located in 5 provinces in Thailand.
- The "Road Safety Knowledge" project for children and youth reached 425 participants in 3 schools.
- The "Basic Life Support" project for a safe life involved a total of 1,115 participants.
- The project to improve the sensory stimulation courtyard for special needs children at the Special Education Center in Phitsanulok was carried out 3 times.
- The 3Rs for Kids project, which provided knowledge on general waste separation according to the 3Rs principles, had 535 participants, including students, government agencies, and communities.
- The Bueng Takhreng project, **"From Home Trees to Bueng Trees,"** relocated 47 trees over 4 meters tall in 2023.
- The Ban Bang Krasob Forest planting and maintenance project involved tree maintenance 3 times, covering a total area of 4 rai.



Sustainable Development towards Creating Shared Value with Communities and Society

Tipco Asphalt Group is committed to conducting business with responsibility towards the environment and society, with the goal of continuously improving the quality of life and creating positive change for communities and society. The Group also places importance on the participation of employees and communities in social development activities, focusing on strengthening communities, enhancing the quality of life, and preserving the environment. These include reforestation and green area development, construction and improvement of roads and infrastructure in communities, support for education and health, as well as the promotion of occupations and income for local people.

The Group has carried out various social activity projects by working together with communities based on the principle of "Reach, Understand, and Develop Together" for the better quality of life of people in the communities. These continuous social activity projects are in line with the Group's sustainability policy, such as Patching Pothole, Knowledge Sharing, Road

Safety for Kids, Basic Life Support Project, Afforestation of Baan Bang Krasob Forest, and Bueng Takhreng "Roads to the Forest" Project.

Under the concept of "Creating Shared Value with Society," the Group has continuously encouraged employees to participate in various activities, which have received good cooperation from the communities. This creates good relationships and benefits all parties.

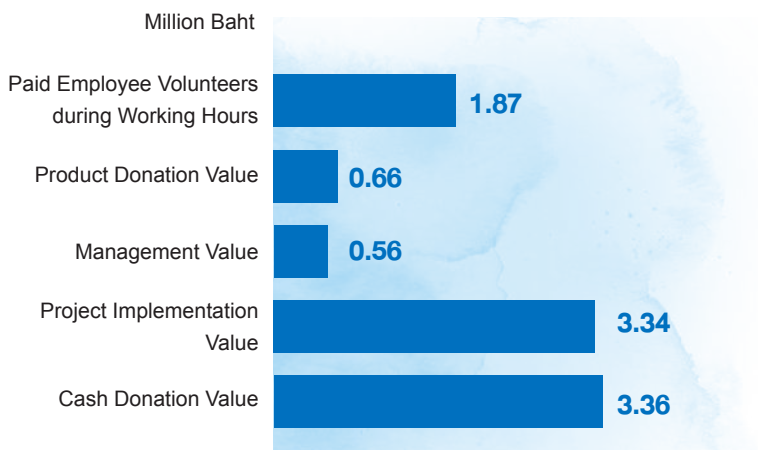
The results of the Group's involvement in community and social development reflect its commitment to creating positive change, such as increased green areas, improved community infrastructure, supplementary occupations and income for locals, as well as better education and health care for children and youth.

The Group is committed to expanding its participation in community and social development to be more extensive and inclusive in order to create sustainable change and serve as a good example for other organizations in the future.

Operations across **7** provinces nationwide

7,973 people from communities and partners participated in activities

124 social projects and activities



Community and Social Concerns Regarding Tipco Asphalt Group's Operations

At Tipco Asphalt Group, we are committed to conducting our business while giving importance to the concerns of surrounding communities, which may impact the environment, health, economy, and way of life of communities near our production plants. The main issues regarding the concerns that the organization has been monitoring are as follows:

- **Environment:** Communities are concerned about air pollution from dust, particulate matter, and odors from the asphalt production process, which affects the quality of life and the environment.
- **Leakage of asphalt from transport vehicles:** There is a risk of asphalt leakage during the transportation of raw materials and products.
- **Fire:** Communities are worried about the risk of fires in the plant's areas.
- **Transportation and Logistics:** The use of community roads for transporting raw materials and products may cause safety problems and traffic congestion.
- **Transparency and Participation:** Communities want to know information and participate in decisions about projects that may affect the community.

However, from dialogues with communities within a radius of no more than 5 kilometers from the factory, it was found that currently, the communities no longer have these concerns and do not have any new additional concerns.

The Group places great importance on these issues and is committed to maintaining operational standards to prevent problems that may affect the community, as well as continuously disclosing information and listening to opinions from the community. This is to ensure transparency and participation in sustainable business operations.



Scan QR Code to Access Community and Environmental Complaint Management Procedures

Community Concerns	Group's Actions	From the Dialogue Results
1. Odor nuisance from production	<ul style="list-style-type: none"> • Installed odor capture systems and sought raw materials that cause less odor 	There are no concerns from the communities
2. Spillage and leakage of asphalt	<ul style="list-style-type: none"> • Strictly provided safety training in asphalt transportation and extended it to contractors 	There are no concerns from the communities
3. Fire in operational areas	<ul style="list-style-type: none"> • Provided annual fire prevention and firefighting drill • Installed prevention and suppression systems according to international standards 	There are no concerns from the communities
4. Safety of communities along transport routes and damaged roads	<ul style="list-style-type: none"> • Strictly provided safety training in asphalt transportation and extended it to contractors 	There are no concerns from the communities
5. Safety of road usage in communities	<ul style="list-style-type: none"> • Road patching potholes for communities • Safety Road for Kids project • Basic life support training project 	There are no concerns from the communities

Participation in Developing or Solving of Social Issues through Business Processes

“Patching Potholes” Project: Temporary Road Surface maintenance with TIPCO PREMIX

The Group prioritizes sustainable development within the organization and in surrounding communities, focusing on creating participation from all departments and everyone in the organization, as well as providing opportunities for communities to participate in setting directions and owning various projects through close dialogues.

Following dialogues with communities, it was found that past concerns on road safety remain a priority for the Group, which continues to raise awareness and implement ongoing projects to ensure the safety of community members while traveling on roads.

The "Patching Potholes" project is one of the Group's efforts to reduce the risk of accidents that may occur due to damaged road conditions with potholes. It involves temporary road surface maintenance before a budget for permanent maintenance is available. The Group has collaborated with government agencies, the private sector, and communities to survey and repair road surfaces using Tipco Premix, a ready-mixed asphalt product. In 2023, the "Patching Potholes" project carried out road maintenance in partnership with business allies, local government agencies, and communities in Nakhon Ratchasima and Phitsanulok provinces, covering a total distance of 7.07 kilometers.

The project not only helps solve the problem of damaged roads and reduces the risk of accidents but also creates exposure of the company's products to the community, resulting in increased sales of Tipco Premix in the area. This demonstrates the success in creating shared value between business and society.

Economic Benefit Indicators:

- Enhance the ability to develop innovation for environmentally friendly products and services
- Strengthen the image of being a leader in asphalt business innovation
- Have partners in disseminating knowledge and product usage across 5 plants

Social and Environmental Benefit Indicators:

- SROI of 5.01%
- Conducted road Maintenance training for 537 people, with a cumulative total of 865 people trained
- Repaired 3 road routes
- Generated revenue from product sales of 97,522.50 Baht
- Average satisfaction rate of 93.40%



Hands 2 Heart : CPR for Life Project “With great cares.... from all of us Tipco Asphalt”

The “Hands 2 Heart: CPR for Life” project is the Group's commitment to creating a safe and sustainable society through basic first aid and CPR training for employees and the general public. The training follows international standards set by The Heart Association of Thailand.

Accidents can happen at any time, and having someone with basic first aid knowledge nearby can help save the lives of those involved in a timely manner. For this reason, the Group places great importance on training employees to become certified instructors who can impart basic life-saving knowledge to fellow employees and surrounding communities.

In 2023, 30 employees completed training to become basic life support instructors. They conducted training sessions and shared knowledge with 468 employees and another 647 community members through the “With great cares.... from all of us Tipco Asphalt” project, which was carried out in collaboration with government agencies, public health organizations, and Partners from private sector.

In addition to helping reduce fatalities from accidents and emergencies, this project also instills a culture of caring and mutual assistance, leading to a stronger and more sustainable society.

Economic Benefit Indicators:

- Enhance the image of giving importance to and caring for the community, mitigating loss of life after accidents
- Partners in basic life support training include government agencies, public health agencies, private sector organizations, and community volunteers in the areas where all five plants are located, with a total of no less than 529 people trained

Social and Environmental Benefit Indicators:

- SROI of 16.62%
- 30 instructors trained to teach communities
- 1,115 providers trained in life-saving skills
- Cumulative total of 3,352 people trained
- Communities in 9 provinces received training
- Average satisfaction rate of 95.86%



Integrated Development of Bueng Takreng: “From Home Trees to Bueng Trees” Project

"Form Home Trees to Bueng Trees" is an interesting environmental conservation project by the Group in collaboration with Bang Rakam Mueangmai subdistrict municipality, Phitsanulok Province. The project aims to conserve trees that need to be cut down for area development by relocating them to the area around Bueng Takreng, creating a new green space and lung for Phitsanulok Province.

In 2023, the project relocated 47 trees from the area development projects in Bang Rakam District and from community donations to be planted around Bueng Takreng. In addition to helping preserve the environment, this also transformed Bueng Takreng into a lush and beautiful recreational spot for Phitsanulok residents and tourists.

Interestingly, each tree has its history recorded through a QR code system, such as its original planting location, previous owner, etc. This allows visitors to learn about the story and origin of each tree in an engaging way, fostering environmental conservation awareness through fun activities.

Moreover, since the project's inception in 2016, the Group has relocated a total of 3,450 trees, which can help absorb up to 340.12 tons of carbon dioxide equivalent. This aligns with the Sustainable Development Goals in preserving ecosystems and combating climate change.

The “From Home Trees to Bueng Trees” project exemplifies development that integrates environmental, economic, and social sustainability.

Economic Benefit Indicators:

- Support the Group's greenhouse gas emissions reduction goals
- Enhance the image of giving importance to environmental care
- Build a network of environmental partners

Social and Environmental Benefit Indicators:

- Absorb a total of 340.12 tons of carbon dioxide equivalent
- Average satisfaction rate of 94.8%



Highlights of Social Projects

The Group has been continuously conducting social activities in accordance with its sustainability strategy, taking into account the importance of all stakeholders, including coexisting with communities and society. This is done through the concept of "Conducting business sustainably with social responsibility, building strong communities in economic, social, and environmental dimensions."

The "Patching Potholes" project: Temporarily road surface maintenance with TIPCO PREMIX, ready-mixed asphalt.

To enhance safety for road users and provide various public benefits. The Group initiated this project by repairing road surfaces and fixing potholes that could cause accidents, aiming to reduce the occurrence of accidents. A total of 3 projects were carried out.

The "Road Safety for Kids" project: To promote safe road usage among students.

Its purpose is to educate youth about road safety and traffic laws, as well as to enhance their experience of using roads safely while traveling with their parents or by themselves. This was carried out through various games that promote memorization and understanding. The project has trained a total of 425 people in 3 schools so far.

The "Hands 2 Heart: CPR for Life" project "Sending care with the volunteer spirit of Tipco Asphalt"

This project aims to provide knowledge on basic life support, including the use of automated external defibrillators (AEDs), for public benefit. The training followed the standards recommended by the Thai Resuscitation Council. The project has trained a total of 3,352 interested individuals from 2018 to the present.

Highlights of Social Projects

Asphalt Product Knowledge Sharing Project

This project aims to develop young leaders in the road construction industry by providing students with direct learning opportunities about asphalt products, technical product processes, and product quality inspection procedures. It offers in-depth study of the complete asphalt production technology, which is beneficial for students in designing and constructing asphalt pavements in the future. Two projects were conducted with 38 participants from the Faculty of Civil Engineering, Kasetsart University, the Chulachomkhalao Royal Military Academy, and the Faculty of Architecture, Rajamongkhon University of Technology Suvarnabhumi.

Asphalt Knowledge Sharing Project

The objective of this project is to promote and develop knowledge of environmental management within plants and production processes. In 2023, two projects were carried out with a total of 22 students from Prince of Songkla University, Surat Thani Campus.

The Integrated Bueng Takreng Project

This project aims to create an ecosystem and conserve, and restore water sources. The project has been designed as an integrated tourism and learning center. Currently, the Group supports the planting and relocation of 3,450 large perennial trees.

The Bang Krasop Forestation Project

The purpose of this project is to conserve nature by taking care of forest areas and improving the areas to promote tourism. The Group was involved in designing various promotional activities, such as cycling to enjoy the beauty of the forest and a tree photography contest. In 2023, 53 tourists participated in the project.

The Bang Krasop Forest Ecological Learning Center Project

This project aims to bring academic and research cooperation to industrial and educational applications, leading to technological excellence and landscape design. One project was conducted with 63 participants from the Faculty of Engineering and the Faculty of Architecture, Rajamongkhon University of Technology Suvarnabhumi



CYBER SECURITY



Key Material Topic Cyber Security

Short-Term Goals in 2023

- Zero cyber threat incidents
- Zero complaints regarding data insecurity
- IT service availability at 99%

Long-term goal for 2025

- Achieve the IT Security Roadmap plan
- Enhance adaptability to cope with situations related to new threats (Cyber Resilience)

Management Approach

Cyber security is a crucial issue that business organizations should not overlook, as the leakage of critical data can have severe consequences on business operations. Tipco Asphalt Group is highly aware of the importance of this matter.

To establish an effective information security system, the Group has adopted the ISO/IEC 27001 standard as a guideline for systematic management in this area, focusing on maintaining the security of data from the storage and processing stages to its utilization.

Recognizing the importance of personal data, the Group pledges that such data will be securely stored within the Group's information systems and will only be used for purposes authorized by the data owners. The data owners retain the right to exercise their rights regarding their personal data at all times.

This transparent operation, coupled with an international standard management system and an emphasis on personal data protection, instills confidence in all stakeholders that their data will be securely protected.



Key Performance Results

- No incidents of cyber threats
- No complaints regarding data insecurity
- IT service availability at 96.49%
- Conducted awareness campaigns about cyber threats for internal personnel and appointed the Information Security Management System Committee
- Continuously developed technologies and work processes, such as the project to improve the real-time payment system connection between the company's server and banks (Bank Interface Host to Host), and the project to develop new categories and processes for procurement and payment



Technology and Operational Process Development

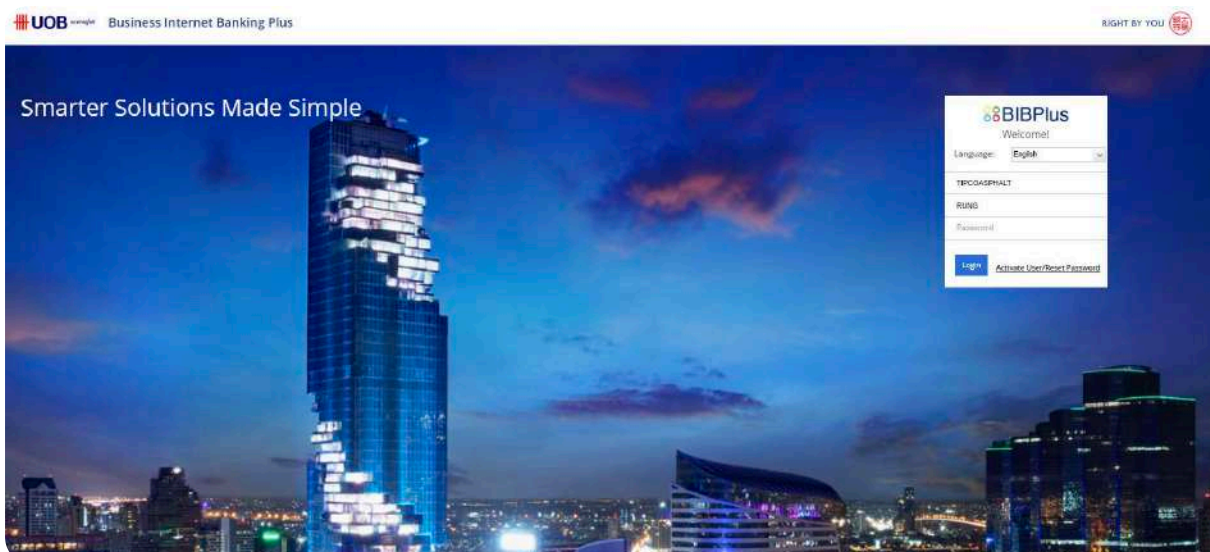
1. Development of e-Withholding Tax system integrated with banks

Typically, the process of withholding tax for goods or services from suppliers is complicated and time-consuming, involving document preparation, tax deduction, printing from the system, sending documents to suppliers for verification, and then recording them in the company's system again. This process is costly and time-consuming. To address these issues, the Group developed an e-Withholding Tax system that directly connects with the banking system, streamlining the tax deduction process and making it faster and more accurate. Suppliers can withhold tax at a rate of only 2% through the automated system and receive the withholding tax certificate instantly without having to send any documents to the company. This system reduces the time and cost of document delivery by up to 90%, as there is no need for printing or mailing documents, and it also reduces the cost of storing paper documents. Additionally, the system has data security measures in accordance with the Electronic Transactions Act, ensuring that

information is stored securely. The development of this system benefits both the Group and their suppliers. The Group can significantly reduce their workload and costs associated with managing withholding tax, while suppliers enjoy the convenience of withholding tax at a lower rate and receiving their tax certificates promptly.

2. Implementation of the New Procure to Pay Category system

This is a significant step in improving and enhancing the procurement process of the Group. With the ability to integrate data from various departments, the system helps eliminate redundancies in operations and reduces the chance of errors from duplicate data entry, resulting in a reduction of redundancies by more than 50%. Moreover, the system has a 90% automated workflow, solving the problem of traditional operations that require a large workforce and reducing complex and lengthy work processes. This brings about the maximum benefits in terms of speed, accuracy, and savings in both time and labor, ultimately leading to a more efficient procurement process.



Enhancing Security Against Information Network Threats and Personal Data Breaches

At present, the impact of cyber threats is continually increasing. As a result, organizational data is constantly at risk of ransomware or breach. The Group recognizes the importance of data security and has developed a comprehensive long-term strategy for information security.

The IT Security Roadmap has been meticulously crafted, encompassing various aspects of development, including advanced threat prevention, access management, endpoint control, critical data protection, and overall security management. The ultimate goal is to achieve ISO/IEC 27001 certification for the Information Security Management System by 2024.

In 2023, efforts were made to enhance the security of devices and network endpoints, ensuring that employees can work safely. Additionally, awareness campaigns were conducted to educate personnel about cyber threats. Furthermore, assessments of information security readiness were conducted, and manuals and operational procedures were reviewed and updated to align with ISO/IEC 27001 standards and personal data protection policies. These measures were taken in preparation for the certification audit scheduled for the last quarter of 2023.

With a strong commitment to efficiently protecting data, the Group can instill confidence in all stakeholders regarding its governance and sustainable business practices.



Unleash Digital Power, Drive Business with Skills (Low-Code/No-Code)

In the digital age, where the demand for technology and applications is rapidly changing, having personnel with the skills and ability to develop applications swiftly is crucial for driving businesses to adapt and compete. Moreover, the ability to integrate data into the enterprise architecture is essential for analyzing future business opportunities and trends.

Recognizing this importance, the Group organized a hands-on training program called "Mendix Developer for Corporate Program" for information technology employees. The program aims to develop skills in writing Low-Code/No-Code applications on the Mendix platform, a technology that accelerates the development process and reduces the burden of writing numerous commands.

This training focuses on providing employees with practical experience in designing, coding, testing, and deploying applications through mock business scenario projects. This allows participants to gain firsthand experience and immediately apply their knowledge to develop their work. Additionally, techniques for connecting with other systems, such as ERP and CRM, are taught to enable efficient data collection and integration into the enterprise architecture.

This investment in developing personnel capabilities in application development and data integration will serve as a crucial foundation for enhancing the Group' competitiveness in the digital business world, where agility and adaptability are key success factors.





GOVERNMENT POLICIES AND BUDGETS



Key Material Topic Government Policies and Budgets

Short-Term Goals in 2023

- Analyze construction projects using the Robot Improvement Process to accurately estimate the demand for asphalt in highway, driveway, parking lot, and double-track railway projects.
- Continuously adjust sales plans to align with changes in government budgets and projects.

Long-term goal for 2025

- Promptly access information on infrastructure construction budgets and utilize innovation to efficiently analyze data, enabling accurate forecasting of domestic asphalt demand.
- Analyze and adjust production and sales plans in line with government policy trends and global directions in road safety, the environment, and road surface efficiency.



Scan the QR Code
to Access the Sales
Policy

Management Approach

Sustainable and environmentally friendly infrastructure development is one of the United Nations' Sustainable Development Goals, which the Thai government places great importance on. The Group is committed to being a part of supporting this policy through accurate analysis and estimation of asphalt demand.

In 2023, we developed a construction project data analysis system using Robot Improvement Process technology, which enables accurate and timely assessment of asphalt usage, as well as continuous adjustment of sales plans in accordance with changes in budgets and projects.

In the long term, by 2025, we will promptly access government infrastructure project budget information and utilize innovation in data analysis to accurately estimate domestic asphalt demand. Furthermore, we will analyze and adjust production and sales plans to align with government policy trends and global directions in road safety, the environment, and road surface efficiency.

By focusing on operations that are consistent with sustainable development policies, the Group will be able to grow alongside environmental conservation and create safety for road users, which is a crucial part of long-term business sustainability.

Key Results

- Monitor government budget for road construction and maintenance projects from the government e-bidding system. Additionally, we have implemented the Robot Improvement Process innovation as a platform for analyzing various project data to determine asphalt product sales plans and identify projects that use asphalt.
- Regularly and promptly evaluate and adjust sales plans in line with changes in government projects or budgets. Moreover, they analyze policy changes in the government sector that impact the product mix plan, as well as opportunities to develop new premium product offerings in 2023.
- Analyze policy changes in the government sector that affect the product mix plan according to government policies in 2023 and identify opportunities to develop new premium products.
- Examine policy changes in the government sector regarding technical methods for road maintenance, which may tend to shift towards increased use of recycled old asphalt road pavement materials .



Future Trends in Road, Highway and Infrastructure Construction

With economic progress and continuous urban expansion, the government places utmost importance on developing transportation infrastructure. In the 2023 fiscal year, over 200 billion baht was allocated for nationwide road construction and maintenance, and this budget is expected to remain high to accommodate urban growth and sustained economic development.

Under policies promoting sustainable development, the government focuses on constructing and repairing roads using environmentally friendly materials and techniques that extend service life and enhance user safety, such as using premium asphalt and recycled old road materials. Moreover, the Department of Highways has revised the 20-Year Motorway Network Development Master Plan (2017-2036) to align with the 20-Year National Strategy, EEC Development Plan and SEC, by integrating expressway and rail networks. This aims to support economic development, reduce community impacts and expand prosperity to new areas.

Future road construction trends will emphasize innovations enhancing road safety while considering environmental impacts and sustainable natural resource usage, such as selecting alternative construction materials, recycling old road materials. Newly built roads must prioritize quality and efficiency, with longer service lives and be able to withstand challenging weather and high traffic volumes.

These reflect the demand for high-performance road surfacing materials like premium-asphalt, as well as opportunities to develop sustainable construction innovations and new materials. Adopting AI and Big Data for project analysis and planning will enable more efficient and precise project execution. Developing transportation infrastructure is crucial for driving the nation's economic growth and prosperity. With clear policies and thorough long-term planning, Thailand progresses towards a modern, standardized, safe and eco-friendly road network, bringing sustainable development and maximum benefits to the nation in the long run.

Connected roads to ASEAN



Road tunnels



Integrated Motorway Network with double-track railway- MR-Map



VALUE FOR THE FUTURE

KEY STAKEHOLDERS



“ Be ready for change ”



1. Human Capital Management: Retaining Potential Employee and Employee Management
2. Promoting employee training and education

Key Risks and Opportunities:

- Risk of employment that are consistent with corporate culture
- Risks of human rights and equality
- Risks of complying with labor laws and standards
- Risk from inadequate succession planning
- Risks related to physical and mental health
- Risks associated with personal privacy and data



RETAINING POTENTIAL EMPLOYEE AND EMPLOYEE MANAGEMENT



Key Material Topic Retaining Potential Employee and Employee Management

Short-Term Goals in 2023

- Maintain workforce readiness with employee turnover rate not exceeding 10%
- 100% employees return to work after parental leave
- Maintain an employee engagement level at least 75%

Long-Term Goals, 2025

- The organization has a capable and talented workforce that can consistently operate and drive organizational growth
- Effectively manage and promote employee engagement to flexibly and efficiently drive its Vision and Mission

Management Approach

Vision of Tipco Asphalt Group in human capital management is that employees have career growth and happiness in their personal lives. The Group believes that employee engagement with the organization affects business success, growth, and sustainability of organization.

The employee engagement survey is a useful tool of communication and analysis to find ways to improve, develop, and support employees with high potential to develop necessary capabilities and skills.

Since early 2020, the Group has had a standardized basic HR information system, allowing smooth HR management to efficiently continue business operations.

The Group set a corporate strategy for 2021-2022 aimed to "Instill innovative culture within organization to improve efficiency of our processes and services." The innovation culture survey was adopted, based on the idea that employee engagement affects strategic goals. It was found that the proportion of employees in Thailand with a growth mindset increased from 33% to 67% within just 2 years, faster than the 2023 target.

In 2023, the Group considered that the internal and external work environments can be compared to the pre-COVID-19 situation. It thus decided to conduct an employee engagement survey using the 2015 and 2017 framework, covering organizational factors and broader work environments. It is also the first year the survey was extended to employees in the construction business.

Key Result

- The employee turnover rate in 2023 still reflects the Group's workforce readiness. Statistics in Thailand show that the asphalt and road construction businesses had a voluntary turnover rate of 8.49%, lower than the 10% target rate and the 14.1% rate in labor markets of related industry.
- 100% of employees who took parental leave returned to work.
- The 2023 employee engagement survey results were satisfactory in both the asphalt and road construction businesses, with an overall engagement rate of 77.5%. The response rates were 95.74% for asphalt business employees in Thailand and 77.39% for construction business.



Promoting Quality of Work Life and Employee Engagement

The Group continuously places importance on enhancing the quality of life of its employees despite the fact that the overall average score of 77.5% in the 2023 Employee Engagement Survey exceeded the target of 75%.

Upon analyzing the details, the Group still sees the need to address the factor of "wages and compensation". This factor was previously one of the three factors that employees scored lower than others in the 2017 Employee Engagement Survey (the factor received a higher score in the 2023 survey, placing it in the middle-level factors group). Additionally, data from the Bank of Thailand's report highlights the overall household debt problem among the population. As a result, the Group recognizes the importance of comprehensively caring for employees' physical and mental well-being.

Regarding physical health, the Group aims to promote the health of working-age employees and introduce more flexible work arrangements, such as adjusting work hours and considering leave days based on family needs.

In terms of mental health, the Group realizes that good mental health is linked to personal financial management that is sufficient for the cost of living, effective debt management, and future savings planning, all of which affect employees' mental well-being.

To provide knowledge and advice to employees on personal financial management, including savings, investment, household debt management,

and individual debt planning, the Group has collaborated with external organizations, such as the Stock Exchange of Thailand, to develop special training courses for employees. In 2023, the following key projects were implemented:

- The "Happy Money Series" project provided financial management knowledge through online channel in Thailand, divided into three sub-courses:
 1. Happy Retirement: Financial planning for retirement (83 participants)
 2. Debt Management: Debt Management (52 participants)
 3. Saving and Investment: Saving and investing (31 participants)
- The Retirement Preparation Program was a workshop to prepare employees for life after retirement. It was held on December 7-8, 2023, in Nakhon Pathom province, with 23 employees who were retiring in 2023 participating out of a total of 47 eligible retirees.


These plans reflect the Group's genuine commitment to developing employees' quality of life in both physical and mental dimensions by promoting health care, creating flexibility at work, and providing knowledge and consultation on personal financial management. This leads to creating happiness, satisfaction, and engagement with the organization, which will result in more efficient and sustainable employee performance in the future.

Performance Evaluation

Employees are the key driving force behind an organization's success. Continuously focus on employee development is crucial for organizations aiming for sustainable growth. This process should be integrated into the performance management system to effectively link organizational goals with personnel development.


Employee Development Approach:

1. Assess employees' competencies and potential to identify strengths, areas for improvement, as well as each employee's interests and self-development goals.
2. Create individual development plans that align with the organization's objectives and employees' needs.
3. Provide training courses and learning opportunities both on and off-site, such as workshops, coaching, job rotation, and self-learning.
4. Foster an environment conducive to learning and exchanging experiences among employees.
5. Regularly monitor and evaluate the progress of employee development.



The Annual Performance Management System

Available from November 28 to December 31, 2023.





Unsure about how to evaluate performance? Let HCM advise.
Wednesday, November 29, 2023,
from 10:00 AM to 12:00 PM

via MS TEAMS.
 All are welcome to join, even if you don't have direct subordinate.

The session will cover:

- o How to accurately reflect work performance.
- o Understanding the 0-5 evaluation criteria standards.
- o Evaluating yourself is already difficult, evaluating subordinates is even more difficult
- o How to properly give feedback to subordinates





- o Re-check SMART GOALS
- o Setting clear and mutually understood evaluation criteria
- o Opportunity to share perspectives and receive feedback from supervisors
- o Avoiding self-serving biases in evaluations

No registration is required. Simply click the link when the session begins.

For any additional questions, please contact Ms. Koravee #6612 or Ms. Thunwaphorn #7350.

Integration with the Performance Management System

The key foundation is to instill confidence in employees regarding the fairness of the system, considering only performance and organizational core values without discrimination based on other factors. The Group, therefore, uses a performance evaluation system with the same processes and criteria both domestically and internationally, consisting of:

1. Planning work performance at the beginning of the year.
2. Review goals and monitoring performance every quarter, where employees and supervisors engage in discussions, exchange opinions, and provide mutual advice.
3. Year-end evaluation through self-assessment and supervisor assessment, with every employee being evaluated at least once a year.

The criteria for annual salary adjustment evaluation are as follows:

- Divided into 5 levels, ranging from Outstanding (performance exceeding expectations), driving team/department improvement to Need Improvement (performance not meeting targets due to work deficiencies).
- The evaluation process includes self-assessment, supervisor assessment, and approval from higher-level supervisors.
- Comparative evaluation is divided by level to ensure transparency and fairness.

The comparative evaluation of performance aims to create consistency, transparency, and fairness between employees and supervisors in assessing performance based on Management by Objectives (MBO). The evaluation results are compared to

confirm consistent evaluation criteria throughout the organization as follows:

- (1) Operational-level employees: Comparison within the department.
- (2) Supervisory-level employees: Comparison within the division.
- (3) Managerial-level employees: Manager level uses comparison within the division, while Director level uses company-wide comparison.

Continuous investment in employee development will result in the organization having knowledgeable, capable, and enthusiastic personnel who can adapt well to various changes, leading to competitive advantages and sustainable growth for the organization in the long run.

From the above performance results, it was found that in 2023, the annual evaluation results of employees with common factors were benchmarked for the equality of evaluation criteria and comparative principles. A total 100% of employees were evaluated through this system at all 3 levels.

The management, including the highest-ranking supervisors in each division, used the evaluation results to consider salary adjustments and annual bonus payments according to the specified scoring criteria. The Group with higher evaluation scores received higher proportions of salary adjustments and annual bonuses compared to the group with lower scores.

No abnormalities or complaints were found regarding unfair performance management, and the Group was able to retain 100% of the targeted employees in the Succession Pipeline.

Promote Equality and Non-Discrimination

Treating employees equally and fairly is at the heart of modern human capital management. The Group recognizes the value of diversity and non-discrimination at every stage of the employment cycle, from recruitment, selection, evaluation, compensation, career advancement opportunities, to personnel development.

Under the Recruitment Policy and Procedure, which aligns with the Group's Human Rights Policy, we do not discriminate against any individual based on differences in race, color, religion, gender, age, or other status in all stages of recruitment and selection. We use a systematic process, considering only qualifications that match the job requirements.

Once quality personnel are recruited into the organization, we evaluate their performance and

potential according to the Job Competency Profile, which specifies the knowledge, skills, and attributes necessary for each job group. The evaluation process involves careful consideration by multiple levels of supervisors to ensure transparency and fairness in promotion, job advancement, and career progression. Promoting equality within the organization is not only the right thing to do but also a key factor in attracting and retaining talented personnel. We regularly generate recruitment reports and monitor results to analyze and improve the process's efficiency, while considering the return on investment in recruitment activities.

The Group strives to create an organization of equal opportunities, respecting human dignity and supporting diversity of thought to drive the Group's sustainable success.

Diversity Metrics ^{1/}	2021	2022	2023
Percentage of female employees compared to total employees	32.02	23.83	28.31
Percentage of female in all management positions including junior, middle and senior management (compared to total management positions)	37.83	33.00	29.73
Percentage of female in junior management positions, e.g. first level of management (compared to total junior management positions)	48.57	36.60	34.48
Percentage of female in senior management positions, e.g. two levels below CEO or equivalent (compared to total senior management positions)	25.00	16.70	26.32
Percentage of women in revenue-generating management roles, e.g. sales (compared to total management positions in these roles, excluding support functions like HR, IT, Legal, etc.)	18.52	15.38	10.71
Percentage of women in STEM roles (compared to total STEM positions)	24.14	25.77	21.43

Freedom of Association^{1/}

Proportion of Employees Representative in Negotiation	2021	2022	2023
Number of employees representing the Welfare Committee and Safety Committee	87	82	81
Percentage of total employees	11.74% (741)	11.74% (698)	12.94% (626)

Note: 1/ Data for domestic asphalt production business and head office only

Employee Breakdown by Ethnic Group/Nationality





TRAINING AND EDUCATION



Key Material Topic Training and Education

Short-Term Goals in 2023

- 24 hours of technical and management training per person per year.
- Training hours for employees are not less than 5 hours per person per year.
- Retain successors of all critical positions (Succession Planning Target)
- Develop high-potential employees to be ready for promotion to management level
- Ensure the Quality of Hire for high-potential and high-performing new hires (Quality of Hire) by passing the performance evaluation based on goals within the first 6 months of employment, and retain new hires in positions from operational level to senior management level (P1 - E2) to pass the probationary evaluation and have a tenure exceeding 6 months.

Long-term Goals for 2025

- Each employee participates in at least one innovation project per year.
- Identified successors for all targeted positions

Management Approach

To align with the organization's strategic goal of becoming an innovative organization, the Group adheres to the fundamental belief of the Growth Mindset, which states that humans can increase their abilities and enhance their potential through continuous learning. The organization supports creating a suitable work environment for employees and adapts work and learning methods to keep pace with constantly changing situations.

Therefore, the "employee-centric" human development approach remains the focus of the Human Capital Development Department to create a standardized work environment that facilitates professional collaboration, attracts potential employees, accelerates employee development, and promotes talented individuals to become future leaders.

The COVID-19 pandemic situation and control measures in 2021 continued to impact work practices and limit the format of training and learning. Online learning has limitations in exchanging experiences, participating in prototype creation, data collection, and exchanging ideas for innovation development. One of the affected activities was the Total Productive Maintenance (TPM) project, as travel restrictions prevented organizing activities where learners could share real experiences, and learners were primarily limited to online formats.



Scan the QR code to access the Total Productive Maintenance (TPM) policy.

Key Results

- The average number of technical and management training hours was 22.43 hours per person per year.
- The number of environmental training hours for employees was 1.2 hours per person per year.
- The average number of training hours for all categories was 38.71 hours per person per year.
- The Group was able to retain successors for all critical positions (Succession Planning Target), achieving a 100% retention rate.
- 90% of high-potential employees were ready for promotion to management levels.
- The Quality of Hire for high-potential and high-performing new hires, measured by passing the performance evaluation based on goals within the first 6 months of employment, was achieved at a rate of 100% (from operational level to senior management level, P1 - E2).
- The focus was on developing 4 skill sets that will help respond to and cope with rapid changes in the current situation: Leading (both self and others), critical thinking, communication, and collaboration & building relationships.
- Emphasis was placed on enhancing skills to deal with change and learning new things. The most crucial skill is managing one's own mindset. Due to technological advancements, the way people learn at work has shifted from learning and then practicing to learning, practicing, learning again, and practicing again in a continuous cycle. Therefore, focusing on coping with a constantly changing world will lead to more sustainable employee development than just providing the skills needed at the moment.
- Online learning was used as the primary method for knowledge transfer, along with online meetings and follow-up sessions.



High-Potential Talent Development Roadmap for 2023

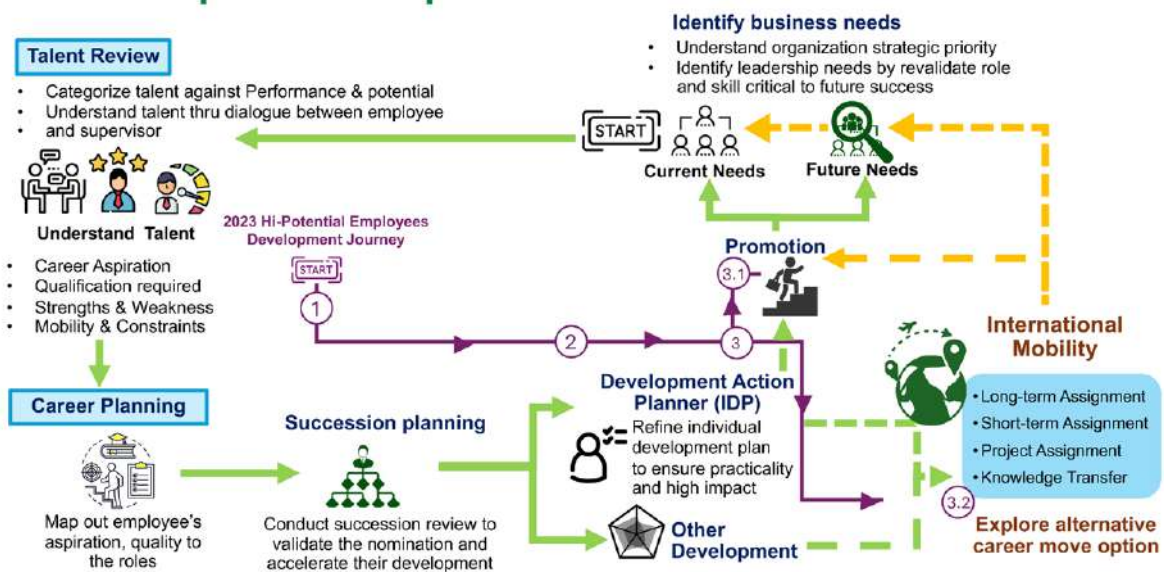
The Group places great importance on systematic and continuous personnel development, with a development process that covers several stages, as follows:

1. **Competency Review:** Starting with identifying the organization's strategic needs, reviewing roles and skills crucial for future success, and then assessing the capabilities and potential of individual employees.
2. **Career Planning:** Assisting employees in setting long-term career goals, analyzing their strengths, weaknesses, and limitations, as well as exploring options for changing to other career paths.
3. **Succession Planning:** Developing Individual Development Plans (IDP), evaluating desires, qualifications, and suitability for various positions to prepare personnel for key roles.

Systematic personnel development will enhance employee potential, increase morale and retention of valuable personnel, prepare for future changes, improve work efficiency and productivity, and foster a culture of continuous learning and self-development within the organization. Companies should identify the needs of each employee, provide diverse development approaches, offer close guidance and support, regularly monitor outcomes, and cultivate a learning culture to ensure successful personnel development that meets the objectives.

The performance results in 2023 showed that the Group was able to retain successors for all critical positions (Succession Planning Target) as planned, and 90% of high-potential employees were ready for promotion to management positions.

Human Capital Development Flow



Development Program for Strategic Planning and Workforce Management for Executives

Effective workforce management that aligns with the Group's mission and workload is crucial for driving business success. To address this, the Group organized the "Strategic Planning and Workforce Management for Executives" program on September 22, 2023. The objective was to educate 40 senior executives and human capital management managers on workforce planning that aligns with business goals and objectives. The program focused on helping senior executives and human capital management managers understand their roles in appropriate workforce allocation, workload analysis, job level determination, and the calculation of Full-time Equivalent (FTE) employee workload units. Participants also had the opportunity to practice analyzing actual workloads within their respective departments.

This program allowed executives to review and improve the allocation of personnel within their departments, ensuring alignment with true business goals and changing workloads.

Upon completion of the program, participants were able to apply the knowledge gained to review and refine the 2024 workforce plan accurately, in line with business objectives. They were also equipped to communicate and create understanding among their subordinates regarding the allocation of roles and responsibilities to maximize work efficiency.

Proper workforce management based on academic principles can help the Group manage its workforce efficiently, reduce problems of workforce shortages or excesses, and determine targeted employee development approaches that align with the Group's business direction.



Technical Knowledge Development Program for the Asphalt Business (Tipco Technical Team)

The Group organized the "Tipco Technical Team" project to exchange knowledge and study innovative trends related to the production, usage, and design of asphalt products from domestic and international industries, as well as case studies on environmental topics such as reducing carbon footprint in the asphalt business.

The project targeted 36 participants, including supervisors and officers from the Technical Department, Research and Product Development Department, Operations Department, and the Road Construction Business. These individuals are key personnel in driving the asphalt business. The objective of this project was to provide participants with new information and knowledge, as well as the opportunity to exchange experiences with external expert speakers. This knowledge will be beneficial in developing products and services that meet customer needs and comply with business standard requirements.

Personnel development is crucial in enhancing the organization's potential and helps employees to:

- Acquire new knowledge and information about innovative trends in the asphalt industry, including production, usage, and product development.

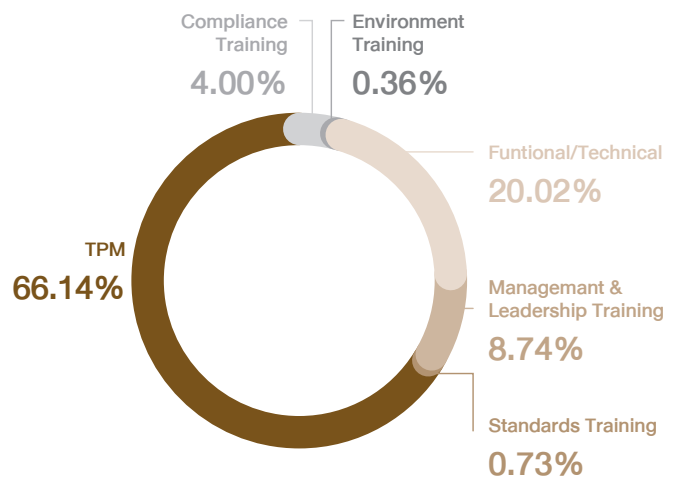
- Gain new knowledge and information about innovative trends in the asphalt industry, including production, usage, and product design and development, from expert speakers both domestically and internationally.
- Exchange knowledge, experiences, and perspectives among employees from various departments related to the asphalt business, such as the Technical Department, Research and Development, Operations, and the Road Construction Business.
- Acquire knowledge about environmental case studies, particularly on reducing the carbon footprint in the asphalt industry, which is a crucial issue at present.
- Apply the knowledge gained from the training to develop asphalt products and services that meet customer needs and comply with business standard requirements.
- Participate in this project to enhance employee potential, ensuring readiness to perform work and drive the asphalt business towards sustainable progress.
- Obtain modern, up-to-date concepts that can be applied to work, driving the asphalt business to grow sustainably and create a competitive advantage.



Uplifting Organizational through a Learning Culture of “Total Productive Maintenance (TPM) Project”

In today's rapidly changing business world, developing the potential of personnel and creating a work environment that promotes learning are crucial factors in maintaining a competitive edge. The TPM project is considered a strategy that helps organizations achieve these goals efficiently.

TPM is a concept of total productive maintenance that involves everyone's participation. It consists of three main pillars: Autonomous Maintenance, Planned Maintenance, and Kaizen (continuous improvement). These pillars focus on enabling operational employees to develop skills according to their level of responsibility and learn together in groups. One interesting activity of TPM is "TPM Happy Workplace," a day organized to promote the exchange of experiences between different departments within the organization through the sharing of knowledge and best practices. This creates an atmosphere of collaborative learning and happy work.



The chart of employee training hours breakdown for 2023.



Award to employees for Focus Improvement Best Practice Project on 28 August 2022

Elevating Organizational Potential through a Culture of Learning with the “Total Productive Maintenance (TPM) Project”

In 2023, the results from the implementation of the TPM (Total Productive Maintenance) principles were remarkably successful. Through 78 Focus Improvement projects, production costs were reduced by an impressive 14.5 million baht. Additionally, 885 Kaizen (continuous improvement) suggestions were recorded, aimed at enhancing work efficiency and minimizing equipment and machinery breakdowns.

Even more impressive, our employees' TPM projects received national recognition, winning awards at the "Thailand Kaizen Awards 2023" organized by the Technology Promotion Association (Thailand-Japan) on August 11, 2023.

The "Trailer Detachment Prevention Device" project from our Surat Thani factory, invented and developed by Mr. Phakhaphol Sucharit, a skilled maintenance technician, reflecting our commitment to safety and the goal of achieving Zero Truck Accidents. This innovation not only benefits our business by ensuring timely and complete delivery of goods to customers but also instills confidence in fellow road users. This project was awarded the Silver prize.

Meanwhile, the "Easy, No Pain, Tighten with Electric Block" project from our Nakhon Ratchasima factory, invented and developed by Mr. Saravut Aphivantrirat, a tire packing employee, originated from our objectives in occupational health and reducing production rework losses. An ergonomic assessment revealed that the activity of tightening tire container lids posed a high risk. This project reduces tightening time and increases production efficiency, earning it an Honorable Mention award.

Currently, all our factories in Thailand are operating under the TPM principles to promote skill training, knowledge, and understanding in equipment and machinery maintenance, reduce losses, and eliminate redundant work processes. The goal is to reduce costs and maintain product quality efficiently and safely. Knowledge sharing within the organization through TPM projects not only develops employees' skills and potential but also fosters a culture of learning and innovation. This is a crucial foundation for sustainably enhancing the organization's efficiency and competitiveness in the long run.





ASSURANCE STATEMENT



You can scan the QR code to access Assurance Statement





GRI CONTENT INDEX




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